DOCUMENT RESUME

ED 469 607 CE 083 948

| | |
|---|---|
| AUTHOR | Keating, J.; Medrich, E.; Volkoff, V.; Perry, J. |
| TITLE | Comparative Study of Vocational Education and Training Systems: National Vocational Education and Training Systems across Three Regions under Pressure of Change. Review of Research. |
| INSTITUTION | National Centre for Vocational Education Research, Leabrook (Australia). |
| SPONS AGENCY | Australian National Training Authority, Melbourne. |
| ISBN | ISBN-1-74096-001-7 |
| PUB DATE | 2002-00-00 |
| NOTE | 206p. |
| AVAILABLE FROM | National Centre for Vocational Education Research, 252 Kensington Road, Leabrook, South Australia 5068, Australia (ISBN: 1-74096-000-9; Cat. no. 863; $29.15 Australian). Tel: 08 8333 8400; Fax: 08 8331 9211; e-mail: vet_req@ncver.edu.au; Web site: http://www.ncver.edu.au. For full text: http://www.ncver.edu.au/research/ proj/nr9009.pdf. |
| PUB TYPE | Reports - Research (143) |
| EDRS PRICE | EDRS Price MF01 Plus Postage. PC Not Available from EDRS |
| DESCRIPTORS | Adult Education; *Comparative Education; *Cultural Context; Demography; Developed Nations; Economic Change; Economic Development; *Educational Change; Educational Development; Foreign Countries; Ideology; Job Training; Postsecondary Education; *Program Effectiveness; Role of Education; Secondary Education; *Socioeconomic Influences; Success; *Vocational Education |
| IDENTIFIERS | Asia (East); *Australia; Chile; China; Europe (West); France; Germany; Japan; Latin America; Mexico; North America; Singapore; United Kingdom; United States |

ABSTRACT

A study to compare vocational education and training (VET) systems examined nine countries across these three large geographical regions: Europe, East Asia, and the Americas. It explored variables that most define and influence characteristics, behavior, and apparent success of VET systems and the impact of change. The nine systems were chosen on the basis of a variety of economic, demographic, cultural, and ideological contexts. They were under pressure for change and subject to policy intervention and provided a broad scope of policy and structural alternatives in finance, governance, recognition, integration, relationships with education systems, and labor market linkages. The three largest West European economies--Germany, France, and the United Kingdom--provided strong contrasts in their VET systems. The East Asian economies of China, Japan, and Singapore were among the most aggressive in growth and development despite major differences in the geography, population, traditions, and political ideologies of the three nations. The Americas were made up of these two regions: the prosperous economies of the United States and Canada and the diverse economies of Latin America. Despite the heterogeneous nature of the regions, the Latin American model is a rich source for comparison. Key issues for Australia include relating VET to the other education sectors, its relationship to the state and civil society, demand-side issues, and VET's mutability in the face of new challenges. (Contains 40 notes and 261 references.) (YLB)

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# review of research

## comparative study of vocational education and training systems

national vocational education and training systems across three regions under pressure of change

J Keating
E Medrich
V Volkoff
J Perry

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ISBN 1 74096 000 9 print edition
ISBN 1 74096 001 7 web edition
TD/TNC 68.08

Published by NCVER Ltd
ABN 87 007 967 311

252 Kensington Road, Leabrook SA 5068
PO Box 115, Kensington Park SA 5068,
Australia

www.ncver.edu.au

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# acknowledgements

Professor Andy Green and Ms Akiko Sakamoto-Vandenberg provided literature and data on vocational education and training (VET) in Japan, Singapore and the UK from the High Skills Project funded by the UK Government. M Oliver Bertrand (former director of CEREQ) provided literature and data on entry-level training in France.

A wide number of consultations with personnel from various national and international organisations contributed to the document. Organisations included:

- The Qualifications and Curriculum Authority, the DfEE, the Scottish Qualifications Authority, the Scottish Office, and Scottish Enterprises in the UK
- The Ministry of Education, CIVoTE, and MOLSS in the People's Republic of China
- SEP, CONOCER and STPS in Mexico
- The OECD and the World Bank

Sincere thanks go to Sandra Haukka for her editing work on the final draft document.

# acronyms

| | |
|---|---|
| ACCET | Advisory Council of Continuing Education and Training |
| ACTU | Australian Council for Trade Unions |
| ANTA | Australian National Training Authority |
| ASTF | Australian Student Traineeship Foundation |
| ATC | approved training centre |
| BIBB | Bundesinstitut fur Berufsbildung |
| CBI | Confederation of British Industries |
| CECATIs | Centros de Capacitacion para el Trabajo Industrial |
| CEDEFOP | European Centre for Vocational Education Research |
| CEREQ | Centre d'etudes et de Recherches sur les Qualifications |
| CETIS | Centro de Ensenanza Technica Industrial |
| CIMO | Programa de Calidad Integral y Modernizacion |
| CINTERFOR | Centro Interamericano de Investigacion y Documantacion sobre Formacion Professional |
| CIVoTE | Central Institute for Vocational and Technical Education |
| CONALEP | Colegio Nacional de Educacion Professional Technica |
| CPC | Commissions Professionnelles Consultatives |
| CPTE | Council on Professional and Technical Education |
| CREST | critical enabling skills training |
| CRET | regional committees for education and work |
| CVT | continuing vocational training |
| DfEE | Department for Education and Employment |
| DGEST | Direccion General de Educacion Secundaria Technica |
| DGETA | Direccion General de Educacion Technologica Agropecuaria |
| DGETI | Direccion General de Educacion Technologica Industrial |
| DHE | Department of Higher Education |
| DVAE | Department of Vocational and Adult Education |
| EC | European Community |
| ETCs | employment training centres |
| FEFC | Further Education Funding Council |
| GCE | General Certificate of Education |
| GCSC | General Certificate of Secondary Education |
| GDP | gross domestic product |
| GED | General Equivalency Diploma |
| GNVQ | General National Vocational Qualification |
| HMI | Her Majesty's Inspectors |
| ICATES | Instituto de Capacitacion para el Reabajo Estatal |
| ILO | International Labour Organisation |

| | |
|---|---|
| IMF | International Monetary Fund |
| INACAP | Instituto Nacional de Capacitation Professional |
| IPN | Instituto Politechnico Nacional |
| ITE | Institute of Technical Education/Instituto Technologico Estatal |
| IVT | initial vocational training |
| MOE | Ministry of Education |
| MOLSS | Ministry of Labour and Social Security |
| NAFTA | North American Free Trade Agreement |
| NGO | non-government organisation |
| NPB | National Productivity Board |
| NVQ | National Vocational Qualification |
| OECD | Organisation for Economic Co-operation and Development |
| OSTA | Occupational Skills Testing Authority |
| OTIR | intermediate technical organisation |
| PRC | People's Republic of China |
| PROBECAT | Programa de Becas para Trabajadores Desempleados |
| SAT | Scholastic Aptitude Test |
| SDF | Skills Development Fund |
| SENCE | National Skills Training and Employment Service |
| SEP | Secretariat of Public Education |
| SME | small to medium enterprise |
| SNET | Sistema Nacional de Educacion Technologica |
| SNVQ | Scottish National Vocational Qualification |
| SOE | state-owned enterprise |
| STPS | Secretaria de Trabajo y Previsiom Social |
| SVC | secondary vocational college |
| SVQ | Scottish Vocational Qualification |
| SWS | skilled worker school |
| TAC | training advisory committees |
| TAFE | technical and further education |
| TEC | Training and Enterprise Council |
| TVEI | technical and vocational education initiative |
| TVET | technical and vocational education and training |
| UNEDIC | national multi-sector union of employment in industry and commerce |
| UNESCO | United Nations Education, Scientific and Cultural Organization |
| UNEVOC | UNESCO International Project on Technical and Vocational Education |
| VET | vocational education and training |
| VITB | Vocational and Industrial Training Board |

# executive summary

## the comparative study

This study attempts a broad comparison of national vocational education and training (VET) systems, through the examination of nine countries across three large geographical regions: Europe, East Asia and the Americas. Its purpose is to examine those variables that most define and influence the characteristics, behaviour and apparent success of VET systems and the impact of change upon these variables.

The field of comparative education studies is richest in the VET area. This is related to the considerable interest on the part of policy makers in international developments, the highly dynamic nature of VET, and the close links between VET, economic strength and the social issues associated with employment. The comparative study is also of interest because of the broad range of approaches at the international level to a range of characteristic variables. The most significant of these are financing, recognition, governance, education and labour market linkages. International interest in VET is also related to the impact of global economic and social change. The challenge of international economic competitiveness is increasingly being considered in conjunction with the questions of economic and social inclusion and exclusion. The role and processes of skills formation are being considered in both economic and social contexts.

## nine systems

The study of VET 'systems' is problematic, as systematisation has been a recent phenomenon in the sector. The study is based upon a review of the literature, supplemented with field work in the VET systems of most of the nine countries gained through other project activity. A description of each of the systems includes the relationship between VET and the overall education system, initial vocational training and continuing vocational training.

The nine systems have been chosen on the basis of their variety of economic, demographic, cultural and ideological contexts. All of the nine systems are under pressure for change and have been subject to policy intervention. Among them the nine systems provide a broad scope of policy and structural alternatives in the areas of finance, governance, recognition, integration, relationships with education systems, and labour market linkages.

## Europe

The three largest West European economies of the 20th century, Germany, France and the United Kingdom, provide strong contrasts in their VET systems. Germany, along with Japan, has been most admired amongst nations for its processes of skills formation, mainly through the apprenticeship system, the Dual System. Frequently examined by other nations, the German VET system has faced significant pressures over the past decade. The main symptom has been a chronic shortage of training places in industry, but more fundamental questions are being asked about the foundations of vocational training in Germany. Questions have been asked about the flexibility of its skills formation system and the appropriateness of channelling up to 60% of young people into an occupational and craft-based vocational training pathway at a relatively early age.

The industry-based VET system of Germany contrasts with the centralised and statist traditions of education and training in France. These traditions have been manifest both in the regulation of vocational training and the labour market. After decades of policy intervention there has recently been growth in apprenticeship and alternance training. VET in France, however, faces significant problems of costs and financing, credentialism, and equity. The high degree of state intervention on the demand side has not necessarily led towards appropriate linkages with the supply side.

Vocational training in the UK has been subject to sustained internal criticism for over two decades. Over this period there has been numerous and frequent state intervention, but the 'system' continues to be based upon a principle of voluntarism. Recent improvements in the UK economy appear to have been accompanied by higher industry commitment to training. On the other hand questions remain about the overall approach to skills formation and the relationship between VET and the general education system.

## East Asia

The economies of China, Japan and Singapore have been amongst the most aggressive in their growth and development over the past two decades. There are, however, major differences in the geography, population, traditions and political ideologies of the three nations. The processes of skills formation in Singapore and Japan have been amongst the most studied, and China has recently shown a considerable interest in VET.

The recent rapid economic growth in China has been accompanied by a considerable degree of industrial and social disruption. The former system of state-owned enterprises and company-based industry training is being dismantled and China is searching for new approaches to VET and its relationship to the mainstream education system. There are major challenges for the direction and funding of VET. In the context of an emerging market economy, the strengthening of the demand side is arguably the major challenge.

Japan's role as the benchmark international economy in the latter part of the 20th century diminished in the final years of the century. It has become apparent that this is not simply a cyclical phenomenon but has implications for the fundamentals of its industrial system. The luxury of concentrating upon general education because of low levels of youth unemployment, the strength of the industry-based training culture, high levels of industry-based initial and vocational training, and strong demand linkages with the general education system appears to be weakening. As with some other nations that have previously exhibited strong training cultures, questions are now being raised about the flexibility of the training system and its graduates.

Singapore has been characterised by a relatively authoritarian and paternalistic state. The high degree of state intervention in VET and the labour market has attracted a considerable amount of international interest. In the case of Japan, however, the emphasis upon regulated conformity is now being questioned as a basis for the development of a culture of risk taking and innovation.

## the Americas

The Americas are effectively made up of two regions: the prosperous economies of the USA and Canada, and the diverse economies of Latin America and the Caribbean. Despite the heterogeneous nature of the regions there have been some

distinctive features of VET in Latin America, the Latin American model, that are a rich source for the comparative study.

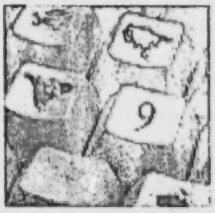
Chile is arguably the richest source with its radical innovations in education and training in the 1980s. More than any other nation it has attempted the most radical innovations including a high degree of privatisation and demand-side interventions such as the introduction of vouchers. Its radical market-oriented innovations now face the further question of the role of the state in the development of advanced skills formation.

Mexico provides a fine example of the tendency towards fragmentation in VET and of the confusion about its role vis-à-vis the general education system. Regular state interventions, frequently based upon imported models, have led to a confusing and disconnected system. Interventions typically have been designed to increase supply with little attention being given to the demand side. Expansion of demand, and the linking of supply to demand are amongst the major challenges.

The enormous strength of the US economy is in stark contrast to the overall performance of its education system, which has very high levels of educational failure and dropout associated with economic and social exclusions. The capacity of industry to generate the necessary levels of skills for a highly advanced economy has been impressive. More recently there has been an unusual degree of state intervention designed to strengthen education–industry links, but the role of VET within the US education system is both small and uncertain.

## conclusions

There are some discernible trends and issues in VET across this sample of nations that should be of interest to the Australian audience. Key issues include relating VET to the other education sectors, its relationship to the state and other elements of civil society, the demand-side issues, and its mutability in the face of the new challenges of this century.



# introduction

The study has been informed through two sets of activities. Members of the research team have been involved in developments and studies associated with a number of the VET systems selected for this research. These activities have included AusAID-funded VET projects in China, a World Bank VET project in Mexico, and a comparative study of skills formation in Japan, Singapore, and Germany.[1] Through each of these activities, senior official and/or notable researchers and commentators within the VET systems of the five countries have been interviewed. The study has also involved collaboration with eminent researchers in the USA and the UK who have been able to draw upon their own extensive knowledge and resources relating to the VET systems of these countries.

This fieldwork has been supplemented through an extensive literature review. A considerable amount of this literature is neither published nor publicly available. It has been accessed by the research team through the activities described above.

## comparative studies of VET

The comparative method in the social sciences is popular in the study of education systems. The huge social investments of education systems are extraordinarily complex through their histories, dimensions, and their links with civil society, the economy and national security and prosperity. Throughout the 20th century, national and regional governments have been required more frequently to intervene in education and training systems. The frequency of the interventions is associated with increased government investment in education and training (OECD 1998), individual dividends gained from education (OECD 1999), and the perceived national economic dividends (Green & Steedman 1993).

Education systems, and especially schools systems, are typically and strongly linked with civil society, including social structures (Boudieu 1973) and political systems. They are also essentially conservative institutions (Ringer 1979) and are at least partially a cultural reflection of the nation.[2] Rapid change and the capacity for radical innovation, therefore, are limited. Although national crises have



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promoted critical examinations of education systems by governments, the responses have typically been conservative measures that are designed to strengthen educational standards.[3]

Training systems, on the other hand, have weaker relations with civil society and national cultures, and therefore have a greater capacity for robust change. White (1995) has noted the tendency of government in Australia to intervene in vocational education and training (VET) in times of economic crisis. Wolf (1998) has observed the same tendency in the United Kingdom. State intervention in VET is consistently more frequent and more radical than in school education.[4] As VET is seen as an economic tool, governments have frequently established relations with the industrial organisations of business and unions (Theunissen 1997). The attachment of government VET policy to the economic cycles and fortunes of nations, as well as the associated employment outcomes, and the interaction between government and economic/industrial interests have added a dynamic and a capacity for innovation that is comparatively absent in education policy.

Governments have shown a willingness to adopt and adapt VET programs and innovations from abroad. The German Dual System of apprenticeships has been the subject of many studies and has been used to inform innovations such as apprenticeships in France and the Youth Training Scheme in the UK. Australia too borrowed from abroad when it used the French taxe d'emploi as the model for the Training Guarantee Levy. Currently the Mexican Government is using the Australian model of competency standards and training packages to inform its own development of a competency-based training system. Reforms of VET in China are looking towards Germany (CEDEFOP Dossier 0/95), the United Kingdom (Stoner 1999), Canada and Australia (Volkoff & Perry 1999).

The comparative method, therefore, is of particular use to VET policy development, and this is reflected in the abundance of recent literature and the willingness of governments to support international studies and visits. At the regional level, governments have also supported international research agencies, the two most notable being CEDEFOP in Europe and CINTERFOR in Latin America. The OECD (Organisation for Economic Cooperation and Development), UNESCO (United Nations Economic, Scientific and Cultural Organization) and the ILO (International Labour Organisation) all have substantial VET research arms.

The comparative study in VET, however, is a substantial task. As reflected in recent literature, the study of VET needs to take account of economic conditions, especially labour market structures and conditions. As Marsden and Ryan (1991) have noted:

*the scope for international comparisons ... is restricted ... they require sufficient institutional and cultural similarity between the countries to make them meaningful, ... they must consider the institutions in which particular training policies are embedded ... they serve not so much to reveal solutions to specific problems as to help understand the conditions for and constraints upon that solution.*

There is also the tendency to see the grass as greener (Keep 1988) when examining international approaches and, as demonstrated in areas such as the 'drug debate', international comparisons are open to gross distortions and misuse.

Our study, therefore, is not an examination of best practice in VET, or an attempt to locate useful innovations that might be applicable to the Australian context. Rather it attempts to provide a broad overview of some of the directions, issues and innovations with a small number of national VET systems across three major economic regions. The study attempts to locate this overview within both historical and contemporary contexts. It takes account of the historical, social and economic factors that have shaped the VET systems, and examines current developments within the context of recent economic and political pressures at the regional and national levels.

We draw some conclusions, but these are observations of trends and issues rather than recommendations for the future direction of VET in Australia. We should hasten to add, however, that there is considerable value in a broad comparative study of international developments in VET systems. There is a tendency for education and training systems in Australia to be restricted by their own institutional structures and demarcations (Malley et al. 2000). The comparative study can assist VET policy makers to reflect on the overall purposes, structures and directions of their 'systems' and help to understand some of their limitations and potential improvements. It is possible to identify variables that influence the effectiveness of VET systems: their capacity for skills formation, methods of financing, equity of access and outcomes, and demand responsiveness.

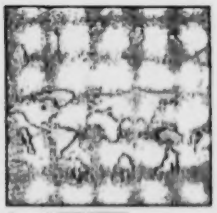
## VET systems and change

It is clearly the case that global economic change is the main driver of the increased policy activity within VET in recent decades. This impact upon VET has several dimensions. Government and industry typically see VET as a major factor in the drive to be internationally competitive, through its contribution to labour productivity. It is also seen as an instrument to counter unemployment, especially structural unemployment, which has been a particular feature of global economic

change and the transformation of economies. VET has a number of advantages in this area. It provides great flexibility in course length, content, location and modes of delivery. The recent growth in the transition period from school education to employment (OECD 1998a) has raised international interest in the role of VET in school education and immediate post-school education.[5] VET is seen as providing both industry-specific skills and more generic workplace skills. VET also has been used to provide support for workers displaced by industrial change. This has been most dramatic in those nations that have experienced major declines in their manufacturing sectors, such as the UK. This has also been the experience of developing countries, such as China, where sectoral declines have also prompted major regional migrations.

Change, however, has had influence beyond its economic impact. It has influenced modes of work and work organisation and increased the complexities of competitive advantage in products and services, industries and economies. It has also influenced ideologies, which are now more dynamic and less structurally consistent than in previous decades. All economies are being influenced by these changes, and VET is frequently placed in the vanguard of both economic and social responses to these changes by governments as well as industry. In China the gradual dissolution of the state-owned enterprises (SOEs) and the emergence of market economies is having a very significant impact upon communities, regions and the education and training system. Huge regional variations in economic growth and wealth are one consequence that government must deal with. Germany and Japan, the benchmark economies of the 1970s and 1980s have recently been subject to new pressures that have begun to raise doubts about the long-term viability of both their industrial structures and the social and cultural relations upon which they are built.

Similar questions are being raised about Singapore's approach to both skills formation and its underlying values base. The neo-liberal approaches of the UK and USA appear to have propelled their economies into growth patterns that are stronger than those of the 'social contract' based economies of northern Europe. Economies with a neo-liberal approach, however, face problems of declining economic equality and increasing social exclusion, and some argue (Green and Sakamoto-Vandenberg 2000) that there are long-term problems in their underlying skills bases. France, on the other hand, continues to pursue state interventionist approaches in the VET sector, with mixed results. It is now some years since Chile introduced its radical measures in education and training, but there are widely differing views on their effectiveness and consequences. Mexico is a fine example of a country dealing with the considerable task of initiating change in an education and training system that is strongly anchored to traditional values and structures.



# VET systems in an international perspective

## systematisation

Government intervention in primary and secondary education has typically been to systematise (Archer 1979) more disparate private and church provision of education. Educational historians (e.g. Ringer 1979; King 1976) generally have agreed that education has been 'supply led', and Green (1990) has shown that education systems have not developed in response to the needs of industry but are related to the needs of the nation state in the processes of nation building.

In their recent comparative study of VET systems, Gill et al. (1998) have concluded that 'demand-side pressures' related to the labour market have been the roots of recent reforms. Nevertheless, these pressures have been brought upon VET systems that continue to be strongly influenced by supply-side factors: institutional structures and operations, professional cultures, administration and finance. In the Australian case, technical and vocational education and training (TVET) had a diverse genesis, with minimal state support or intervention (Murray-Smith 1965). TVET had a similar experience in Britain (Senker 1992). In the USA, state intervention in TVET has a very recent history and dates substantially from the Perkins Act of 1990. In Europe, and especially in the Germanic (Germany, Denmark, Switzerland and Austria) apprenticeship-oriented 'systems', TVET has been mostly the property of the 'social partners' of business and unions. State-administered TVET has typically been located within secondary education systems. Except where technical schools have been linked to entry-level employment and training, there has been a tendency to use secondary technical education as a means of differentiating students from academic and university-oriented programs.

TVET, and especially continuing vocational training, still attracts a relatively small proportion of state funds in comparison to school and higher education. But as our study will demonstrate, the last two decades have seen an increasing and



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substantial amount of state intervention (Gill et al. 1998; OECD 1999). In a historical sense, therefore, this suggests a changed set of international circumstances that have drawn the attention of the state to TVET and created the need for frequent and substantial legislative and administrative intervention.

Before we consider these circumstances, it is important to clarify our understanding of VET in an international perspective. VET can be differentiated from general education through institutional forms, pathways, or through the conceptual forms of practical and applied contrasted with academic and abstract learning. VET in Australia is institutionally differentiated from 'general' education to an unusual extent. The National Training Framework clearly identifies VET through competency-based learning and a set of rules governing the recognition of outcomes. Separate VET authorities reinforce this identification. A similar, but more complex set of arrangements operates in the UK. In Germany, VET is identified by its attachment to the Dual System of apprenticeships. In most other systems, VET in its institutional forms is identified by either its attachment to non-university post-school programs or its relative exclusion from university pathways. For this reason, the term TVET tends to be used, especially in European countries such as France that differentiate between academic education, technical education and vocational training.

Consequently, it is common in Europe to also differentiate between initial (IVT) and continuing vocational training (CVT). Initial vocational training is typically located in state-administered, and mostly state-financed, TVET institutions or through various forms of apprenticeships. The concept of apprenticeships is relatively broad internationally. Apprenticeships can range from employment-based programs to largely provider-based programs and encompass the concept of 'alternance' between provider and work-based learning. Even the German Dual System is becoming more differentiated as it is being required to adapt to new sets of industrial and labour market circumstances (CEDEFOP Dossier 1/97; 3/97; 2/98; 2/99).

CVT in a broad sense is post-employment. In some cases, such as France, Japan and Mexico, it is institutionally separated through its divorce from the formal education system. In some of these cases (France and Mexico) CVT partially comes under the authority of ministries for labour, rather than education. In some (Japan) it is essentially informal, or highly formal (Germany), and yet in others it is a mixture, such as the USA where the working population frequently returns to a wide variety of education and training (Arum and Hout 1998). Furthermore, both Mexico and Chile have informal training sectors (Fluitman

1995; Keating 1999), frequently delivered through non-government organisations (NGOs) that make significant contributions towards basic skills formation at both pre- and post-employment levels.

Our study will need to accommodate this diversity. One consequence is that statistical comparisons are difficult to construct. For example, the OECD (see 1997) provides an annual comparison of the percentage of 16–18-year-olds enrolled in general and vocational education in each of its member countries. The accuracy of this comparison must be questioned, however, as for example students enrolled in the French technical baccalauréate are classified as 'vocational', but VET in schools students in Australia are classified as general.[6]

We have constructed, therefore, a portrait of VET in each of the selected countries. These portraits are different in their emphasis. We need to identify what constitutes VET in each of the systems and identify aspects and developments that best inform the comparative analysis. These features then inform our discussion and conclusions. Across these diverse systems, however, it is important to identify the major elements of VET that need to be located. The different approaches and trends will be important for the comparative analysis.

## typologies and variables

### initial training systems

It is important to locate initial vocational training (IVT) within VET, as most countries do not have such clear institutional divisions between VET and non-VET as Australia does. In a large number of countries (e.g. Germany, Mexico, Singapore) school students are divided into vocational and technical streams at a comparatively early age (14 or younger). The vocational streams would mostly be described as 'general vocational' and lead to relatively early labour market entry, apprenticeships, or technical and vocational courses at the upper secondary and tertiary levels. There is a recent tendency in some of these systems (Mexico) to allow greater flexibility in pathways from these streams, either back into general or academic courses or to establish greater opportunities for further education and training at the tertiary level. Given that these junior secondary programs can mostly be regarded as part of the mainstream secondary education system, our study will assume that VET begins at the upper secondary or 16+ levels.

Raffe (1993) has classified post-compulsory education and training systems, which correspond to initial training systems, into three types: provider-based, work-based and mixed. The provider-based systems are characterised by a

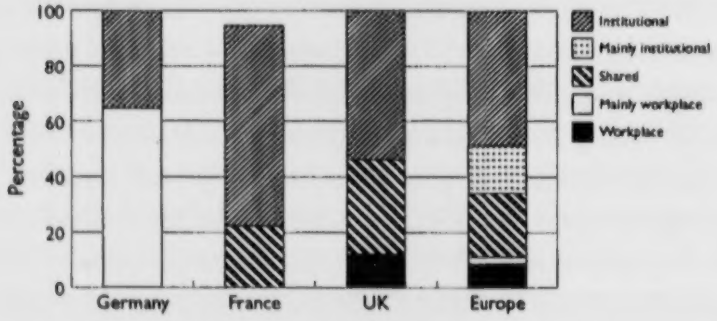
dependence upon education and training systems to provide entry-level skills for workers. Work-based systems leave this responsibility largely to industry or the workplace. Mixed systems combine the two approaches.

Although the classifications are imperfect, our nine countries across the three regions could be classified as follows:

| Region | Provider-based | Mixed | Work-based |
|---|---|---|---|
| Europe | France | UK | Germany |
| East Asia | Singapore | China | Japan |
| Americas | USA | Mexico | Chile |

France, as indicated by its substantial public investment in education (see table 7 in appendix) has established a diverse range of post-compulsory TVET institutions that are designed to provide specialist training, somewhat in the Napoleonic tradition. Although public investment in provider-based education and training in the USA and Singapore is not high, this is supplemented through substantial private investment. In Germany, initial vocational TVET is dominated by the Dual System. Japanese firms have also taken responsibility for initial vocational training (Sakamoto-Vandenberg et al. 1998) and, although this training is mostly informal, it is effective. The training market liberalisation in Chile has placed a heavy responsibility for initial training on both the firm and the individual.

**figure 1: location of initial vocational training, Europe, 1993–94**




source: EC 1998

In between these two types the UK offers the 'mixed model' Raffe (1992), with provider-based academic and general vocational programs and work-based training programs. The incipient Chinese system of initial vocational training combines a state (and fees-based) system of vocational schools and work-based



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initial training programs in state-owned enterprises (SOEs). A private training market is yet to emerge. Mexico has established state-supported vocational schools. However, there is little evidence that they do much to supply industry with entry-level skills (World Bank 1995) and industry variously takes responsibility for its own entry-level skills formation. The European typologies can be compared statistically.[7]

The enormous diversity between neighbouring countries with relatively similar industry bases indicates the lack of evidence for the frequent assumption that TVET 'systems' are the creation of industry needs. Their characteristics are due to a multitude of causes.

Raffe (1990) offers a further set of typologies to describe forms of differentiation or pathways in post-compulsory education and training: unified, binary, and multi-tracked. Unified systems tend to delay forms of differentiation and tracking until the end of the final year of schooling. Binary systems have a relatively clear division between academic and vocational streams. Multi-tracked systems offer various types of pathways, whether as relatively narrow or rigid tracks, or in more flexible forms. Once again, we can loosely classify our nine systems as follows:

| Region | Unified | Binary | Multi-tracked |
|---|---|---|---|
| Europe | France | Germany | UK |
| East Asia | Japan | China | Singapore |
| Americas | USA | Mexico | Chile |

We should again stress that these allocations are somewhat artificial, and we use them only for analytical purposes. They are useful typologies to support an examination of the pressures upon VET systems in the context of significant social and economic change. Change is a feature of all of the systems, and the increased level of state intervention to promote change is a symptom of the inadequacies of the systems and models they partially represent in coping with new circumstances.

Since the Haby (1995) reforms of the mid-1970s, France has pursued a policy of establishing the common framework of the baccalauréate as the benchmark qualification for labour market entrance. The qualification, set at level IV within the French educational framework, includes vocational and technical lines. It is also regarded as being parallel with some more distinctly vocational programs. While the Japanese education system is based upon a hierarchy of schools, and includes vocational schools, strenuous efforts have been made to maintain a unified or equal system (Sakamoto-Vandenberg et al. 1998). The

relatively undifferentiated high school and baccalauréate model dominates the USA. The UK has opted for the tripartite model of academic, general vocational and vocational programs and Singapore has developed a relatively differentiated and tightly tracked set of pathways. Chile, on the other hand, has a variety of tracks but within a relatively unregulated context. There is a clear binary division between the university-oriented Arbiter programs and the Dual System in Germany (although recent moves towards greater flexibility have been frequent, e.g. CEDEFOP Dossier 3/97). Mexico and China both have established typical binary divisions between academic and vocational courses and institutions, though there have been some recent initiatives to create pathways between the systems in China.

## continuing vocational training

CVT does not lend itself to typologies and classifications in the manner that has been attempted for initial vocational training. It is characterised by different patterns of on- and off-the-job training; formal and informal training; state, company, union, organisation or individual funded, initiated or supplied training; and recognised or unrecognised training. It is strongly influenced by the availability and nature of IVT, laws and regulations, collective agreements, and industrial and social traditions (Maurice et al. 1988). The structure of economies and the size, structure and industry area of enterprises also influence it. The financial structures of economies and enterprises, the relationship between enterprises, and the patterns of ownership and investment structures of enterprises, and the associated pressures for financial returns all influence the propensity of enterprises to invest in training (Finegold & Soskice 1988).

Further influences come from the structure and behaviour of the labour market. Low levels of labour turnover tend to reduce the disincentive to enterprises for training created by the practice of poaching skilled workers from other firms. Turnover in turn is influenced by relative patterns of labour market segmentation (Ashton et al. 1993; Ashton 1997), which in some cases are reinforced by regulatory structures (Germany) and the relative strength of internal labour markets and occupational labour markets (Marsden 1997). It is also influenced by patterns of immigration, which in the case of Australia and the US have been used as a substitute for skills development (Withers 1989).

The concept of a 'training culture' as applied to CVT, which was so strongly present in the lexicon of the 'national training reform agenda' of Australia in the early 1990s, is difficult to pin down from an international perspective. It has

different forms, as exemplified by three of the systems, Germany, Japan and the USA. The long standing guild traditions and respect for the skilled crafts have provided the foundation for the German Dual System. But the system is also underpinned by the strong corporatist structure of the German labour market (Green & Sakamoto-Vandenberg 1999) and the consequential regulatory arrangements that are conducive both to enterprises investing in training and to individuals undertaking further training in order to advance within enterprises, the labour market and industry. A regulatory framework or a corporatist tradition, on the other hand, does not induce the Japanese training culture. The 'high trust' social traditions (Fukuyama 1995), non-familial group solidarity, more equal social and class structures (including flatter income distribution—see table 8 in the appendix) have been conducive to the development of the *Keiretsu* (groups of interlocking companies), nenko (lifetime employment), and strong internal labour markets (Green 1999). Corresponding low labour turnover and a high degree of company loyalty have been conducive to, and matched by a high degree of enterprise commitment to, training and skills formation (Dore and Sako 1989).

These two economies have provided the two major but very different benchmarks for the development of a training culture over the past two decades. Recently, however, the US economy has been outperforming those of Germany and Japan, 'the USA has the highest Total Factor Productivity' and 'labour is highly productive in most sectors of the economy' (Green and Sakamoto 2000, p.2).[8] Continuing skills formation is largely an individual responsibility within the context of a highly competitive labour market and mobile workforce. American workers are more inclined to undertake further training through means external to the firm than workers in Japan or Germany (Arum and Hoult 1998).

CVT is also influenced by state intervention, which in turn is influenced by ideological disposition. Typologies of state roles include the neo-corporatism of the German system and other northern European economies, which was attractive to the Hawke Labor Government under the accord with the ACTU; the centralised style of French statism; state paternalism in Singapore (Green 2000); neo-liberalism in the UK; small government in the USA; and the privatised approach in Chile.

In virtually all of our systems the disposition of the state has changed or is changing. French centralism is subject to pressure to regionalise (CEDEFOP Dossier 2/99) and to encourage greater private sector involvement (CEDEFOP Dossier 3/97; 2/98; 3/98). The United Kindgom established industry training boards in the 1970s that selectively imposed training levies on an industry sector

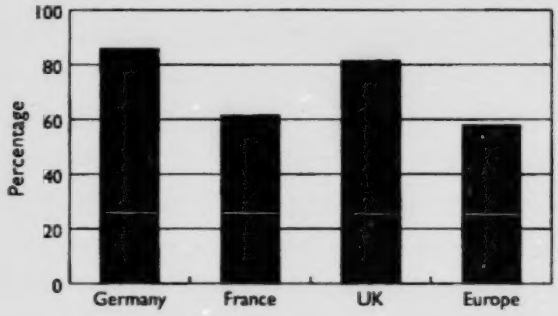
basis. The Thatcher Government abolished them but they are now being partially reintroduced by the Blair Government (CEDEFOP Dossier 1/99). The German Government is under constant pressure from industry to dilute some of the elements and 'principles' of the Dual System (e.g. CEDEFOP Dossier 2/98).

In the Americas, the US Government has made numerous and unprecedented 'interventions' since the Perkins Act. The Pinochet government in Chile abandoned the traditional Latin American model of payroll levies for training and introduced a highly devolved and privatised approach to VET (Middleton 1993; Gasskov 1989). The Mexican Government is under pressure to move towards a more demand-led approach (World Bank 1998).

The weakening of the Japanese system of lifetime employment and the weaknesses of the large secondary labour market are raising questions about the sustainability of the Japanese training culture built upon internal labour markets. The Chinese Government is facing the problem of how to develop CVT in the context of the decline of the large state-owned enterprises (SOEs) and their patterns of allocated and lifetime employment. The paternalistic statism that has contributed towards Singapore's economic miracle is now seen as being unconducive to the development of innovators, risk-takers and entrepreneurs (Lim Swee Say 1998).

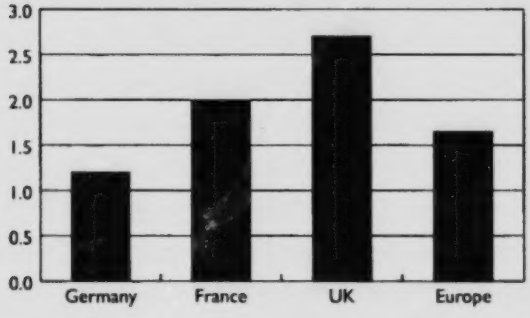
Estimates of investment in CVT by enterprises and individuals are notoriously inconsistent and this is conducive to inflation and misdirection under impact of state duress, such as the French taxe d'emploi. Comparable international figures are not available, but EC data provides interesting comparisons.

**figure 2: enterprises offering CVT, Europe, 1993**




source: EC 1998

**figure 3: costs of CVT as a percentage of total labour costs of enterprises, 1993**




source: EC 1998

Figure 2 indicates that most enterprises in our three European countries offered CVT in 1993 and that the figure is very high in Germany. Figure 3, however, indicates that UK enterprises invested more heavily in CVT than all other European countries, especially Germany. These data contradict a vast amount of British literature that has bemoaned the processes and levels of skills formation in the UK, including CVT (e.g. Finegold and Soskice 1988) and the lack of a skills culture (Weiner 1981).[9] These problems point to the difficulties in defining and locating CVT and a training culture. Boundaries between IVT and CVT, the relationship between broad educational standards and outcomes and industrial skills levels, the types of skills, and the distribution of education and skills across the working population all need to be considered when assessing skills formation in economies.

For example, Green and Steedman (1993) argued that levels of educational attainment for the British were poorer than those of Germany, France, Japan, and the USA. This provided a weaker foundation for industry skills formation, a situation exacerbated by the poor IVT system in Britain. This problem would be made worse by the tendency for levels of educational attainment to be more skewed in Britain, with the bottom 40% of students attaining levels significantly lower than their equivalents in other competitor economies. Under these circumstances it is likely that British enterprises would have to invest more heavily in CVT.

On the other hand, Bynner and Roberts (1991), in their comparative study of British and German youth, found that British youth were better equipped with 'enterprise' skills of innovation, adaptability, initiative and problem solving.

Within the context of globalisation, the development of these types of skills is now a significant issue for economies such as Japan, Germany and Singapore. These countries previously have been much admired for their processes and levels of skills formation and have had social contracts that are more conducive to economic equality.

A comparative study of VET in a range of countries needs to consider broader social and political contexts, as well as the relationship between elements of the VET systems and their relationship with the education systems. VET systems are an expression of national traditions, social/industrial contracts (written and unwritten), economic and industrial structures, and political preferences and directions. Put this way, the capacity of the state, or the state and the social partners, to direct VET will be limited. It is useful to consider what variables are available to influence directions.

### VET and 'second chance' education

VET has played a role in providing re-entry to formal education for people who have left education at an early age or who havé experienced educational failure. This has been a strong feature of VET in Australia, as well as the UK and more recently the USA. Equity issues have also maintained a strong presence, with the capacity of VET to better serve disadvantaged groups than higher education. VET also has been used as a foundation for programs for unemployed people. It offers the advantages of diversity, flexibility, modularisation and short-term programs, as well as linkages with the labour market.

The emerging policy focus upon lifelong learning also has implications for VET, which has generally been more accessible for larger proportions of the population. This has also increased policy concentration upon the linkages between VET and higher education.

## variables

### financing VET

VET is a relatively expensive form of education, especially in comparison to or in the context of secondary education (Gasskov 1989). As indicated above, the state has been more reluctant to invest in VET than in either school or higher education. This is especially the case within strong liberal philosophies of the state, such as the UK, where there has been a reluctance for the state to invest in economic infrastructure. This is also the case in Australia where the states took an

early view that the Commonwealth should ease the financial burden upon them for VET (Spaull 1989). With an expansion of VET enrolments in line with an overall expansion in education enrolments the pressure upon governments to diversify the funding of VET has been considerable. Other pressures are related to the growth in unemployment, especially youth unemployment. Green et al. (2000) state that VET programs for unemployed people have 'an almost unlimited' (p.48) potential for funding inputs and that the growth of lifelong learning will lead to funding pressure for CVT.

The patterns of VET funding are strongly influenced by the type of programs. IVT, especially where it is mainly located in the school system, such as in Mexico and China, tends to be funded by the state. But because of the limits of state funding, access is limited through selection (Mexico) or fees, or both (China). Germany has been able to keep the overall costs to the state at a relatively low level, given its traditions of corporatism and social democracy, in a context of very high levels of participation into adulthood.[10] This is achieved through industry carrying the responsibility for apprenticeships for 70% of young people. The USA, which has relatively low levels of participation in VET within the school age cohort (see table 9 in appendix) depends upon a high level of private investment at the tertiary level.[11] None of the OECD countries have a high level of private investment at the secondary level with Australia amongst the highest at approximately 9%.

For institution-based IVT the main sources of finance are the state or the individual. State funding is complicated by the multiple levels of government within some countries (USA, Germany, China, Japan, Mexico, and Chile) and there is a tendency towards fragmentation of IVT, including a multiplication of courses and authorities.[12] Historically there has been a tendency for the lower levels of government to finance VET (the statist traditions of France being the outstanding exception), although this is confused by the practice in some nations of the central government distributing funds to the regional governments. A dependence upon fees for finances can be limited because of low levels of income (China) or perceived poor rates of return for VET (Mexico). On the other hand, high levels of labour market regulation (Singapore and Germany) can enhance private and industry investment. Private investment also has proven difficult to achieve where centrally administered public training organisations dominate the training market.

Another source of funding, common within Latin American countries (the Latin American model) has been various types of levies upon industry. The most

common form has been a payroll levy that is designed to establish a training fund that supports industry training. These schemes have a poor record, as the funds are typically used to support bureaucracies, pre-employment training, and training for the unemployed, or are diverted to general government revenue (UNEVOC 1998; Middleton et al. 1993).[13]

More creditable variations of this model have been various forms of matching grant schemes (Crisafulli 1998). Subsidies funded either through general revenue (UK) or an industry tax (France – taxe d'apprenticesage) have also been used to encourage employers to provide entry-level training places. They have also been used to directly encourage employers to provide CVT (Singapore).

Funding for CVT typically involves mixtures of state, individual and industry funds. It has been a goal of most governments to promote a higher level of individual and industry investment in training. Its high costs, high degree of specialisation, and the persistent problem of obsolescence of equipment limit state investment in CVT. Individual and industry investment typically has faced the disincentives of perceived and real low individual and industry rates of return for investment in VET. Poor rates of return are caused by a number of factors. They include a lack of recognition of VET outcomes in the labour market, either formally in award structures, or informally because of the poor status of vocational qualifications; industry fears of 'poaching' skilled labour; industry financial structures that create pressure for short-term rather than long-term profits; and a training market of poor quality and limited provision.

State funding for CVT is also influenced by state traditions. The USA, for example (see table 7 in the appendix), has a relatively low level of state investment in CVT, and this is consistent with the tradition of non-intervention in areas of economic infrastructure such as transport and public utilities (King 1976). It also contrasts with a relatively high level of state investment in school education; a more active state role in France and Singapore and the more active role played by the social partners in Germany.

Governments have used various mechanisms to overcome these barriers. Wage structures in Singapore were inflated in order to encourage industry to employ high- rather than low-skilled workers and to invest in training (Green 2000). The highly regulated German labour market and industry structures require appropriately qualified people to fill various categories of work, such as the 'meister' positions.[14] The UK has put considerable effort into encouraging the 'recognition' of VET qualifications through the establishment of a qualifications framework, the reform of the curriculum, and efforts designed to establish greater

industry leadership and control. Chile has implemented radical measures to establish a private training market, and has even privatised the administration of the VET system. Mexico is looking towards an Australian model of industry-developed competency standards (norms) as a means of gaining greater industry participation. The UK and Chile have both used forms of training 'vouchers' as a means of stimulating the training market (Carnoy 1998).

Governments have considered a range of measures to apply forms of duress upon industry to provide training for their employees. In Singapore taxation policy has been used. The French taxe d'emploi and taxe d'apprentissage have been relatively long standing and controversial. The new Social Democrat Government in Germany has proposed preferential government contracting arrangements for enterprises that provide training (CEDEFOP Dossier 2/99). Forms of compulsion that run against the British 'voluntarist' traditions have been proposed in the UK (Layard 1993), and are now about to be implemented. Governments have also used forms of duress to encourage individuals to undertake training. This applies mainly to unemployed workers and a recent example is the 'New Deal' programs in the UK (CEDEFOP Dossier 1/99).

## recognition of VET

Low status of courses and qualifications and an academic drift of students in IVT is a consistent problem in VET (OECD 1999). This is especially the case in those countries where IVT is located as a minority stream within secondary education (Japan, Mexico, Singapore). CEDEFOP officials (Keating 1994) have argued that it is important to limit the academic streams to no more than about 40% of the upper secondary cohort, as in Germany and the UK, if the vocational streams are not to be debased.

Governments have approached the problem of low recognition in IVT in a number of ways. There has been a tendency towards 'generalising' vocational courses (OECD 1999) such as the General (and Scottish) National Vocational Qualifications (GNVQs/SNVQs) in the UK and to include core or key skills within either IVT or both vocational and academic programs (Werner 1995). Curriculum reform is seen as a means of strengthening industry and other 'user' recognition in China, Germany and Mexico. Some countries have established qualifications frameworks to create equivalence between academic and vocational courses, as in the UK, France, and Europe (CEDEFOP 1991). Greater flexibility within IVT and between vocational and academic pathways (Germany) and access of students who have undertaken IVT to tertiary education are measures employed or announced recently by some countries (France, Mexico and China). The common

award of the French baccalauréate, with its general, technical and vocational courses, has some similarities with the vocational concentrations and specialisations within US high school diplomas. The Mexican bachilerrato also contains general and technical streams.

As vocational streams will typically have poorer labour market outcomes than academic streams, measures to link IVT courses with the workplace are being adopted in some countries. These measures are informed by the better employment outcomes for young people in comparison to adults in countries with large apprenticeship streams, mainly the Germanic countries of Europe (see table 3 in the appendix). The concept of 'alternance' is frequently used in the lexicon of European training discourse (see CEDEFOP Dossiers and CEREQ Briefs). It is a useful concept that indicates a formal linkage or interchange between institution-based education and work.

Within CVT, outside of the regulatory frameworks, recognition has been encouraged by the use of industry-developed standards (Mexico, UK), formal and more flexible forms of accreditation (France).

More recently nations have become aware of the emergence of a qualifications market. This has been the case for some time for higher degrees within the university sector, but a more robust market is emerging in the VET sector. International (British, German) qualifications have been used in developing countries for some time. More recently foreign qualifications have penetrated markets in Europe, and nations now face the emergence of private qualifications, in particular those in the IT industry such as Microsoft and CISCO.

## governance of VET

As was the case in Australia, the administration of VET systems in some countries (France and Mexico) is divided, with education authorities taking responsibility for provider-based IVT and labour or employment authorities taking responsibility for CVT. There has been a trend towards the consolidation of these administrations. In the case of the UK this has included the consolidation of the qualifications authorities. China is also consolidating programs under the education ministry.

Where a separation remains, there has tended to be a difference in the style of administration. The largely centralised and uniform vocational programs under the French Education Department contrast with the largely decentralised and diverse CVT programs under the Department of Labour. The flexibility is such that even the British NVQs have been offered in some French regions (CEDEFOP Dossier 1/98).

Movements towards forms of industry ownership and management of VET, especially CVT, have been a significant agenda item within a large number of systems. This has been a long standing feature of the German system where VET has been directed by the corporatist Bundesinstitut fur Berufsbildung (BIBB) at the national level and the industry chambers at the regional levels. The UK has also attempted greater industry direction over, and management of, VET through the regional training and enterprise councils (TECs)[15] and more recently the regional development councils (CEDEFOP Dossier 3/98). The most radical measures are those implemented in Chile, where management of VET, as well as the training market, has effectively been privatised.

## labour market and industry structures

The link between labour markets and VET is too obvious and complex to allow a detailed discussion within this study (Pottier 1991). Nevertheless, changes in labour markets is one of the major factors, and arguably the major factor, that is influencing the dynamics of VET internationally. Indeed, the two major drivers of VET policy, meeting industry skill needs in a more competitive international environment and reducing levels of unemployment within economies, are closely related to labour market changes. As well, VET systems are strongly influenced by labour market structures and behaviours. Dougherty (1987), for example, has argued that the German Dual System is largely designed to support youth transition into employment, rather than a skills formation system, and is tantamount to a large labour market program.

Raffe (1990) has argued that there is some reverse influence between education and training systems and the labour market, and Lutz (1981) in a comparative study of France and Germany concluded 'that the educational system has a significant influence on the development of employment structures'. This appears to be evident through a comparison of the historical development of the French and German VET systems. Both are historical social and political constructs (Maurice et al. 1988) and have labour markets that are constructed in different manners. Factors such as youth wages, occupational structures and their associated regulatory arrangements are not entirely intrinsic to labour markets but are at least partially political and social constructs. Indeed the British Government (and now the Australian Government) attempted to radically reconstruct the labour market through legislative and administrative instruments, including the VET system, with some success.

Labour markets across the nine countries offer a variety of types. Sectoral distribution ranges from the mostly rural-based Chinese economy to the service-

oriented economy of the Chinese city state. Some of the more advanced economies have distinctive labour market types. For example, using three typologies identified by Ashton (1992), the German labour market can be described as occupation, that of Japan (and to a lesser extent France) as firm internal, and those of France and the USA as external labour markets. There also are differences within these types. For example, internal labour markets in France are more hierarchical than those in Japan and consequently will tend to be more qualifications sensitive for internal promotions (although not for employment entry). They also lead to more inefficient and duplicating hierarchies than in Japanese and German firms (Maurice et al. 1988).

There is pressure upon labour market types. The structure of the French labour market is conducive to high levels of youth unemployment and to credentials inflation (Dore 1997) and has not been conducive to high levels of labour productivity. German occupational classifications are under constant pressure within the context of global trends towards flexible specialisation (Piore and Sabel 1984) and rapid product and industry changes. External labour markets, and the associated pressures for deregulation, on the other hand, are leading towards higher levels of part-time and casual employment that are characteristic of secondary labour markets. Governments face choices on these matters.

Within the developing economies labour markets are also complex. Informal labour markets are a feature of these economies, and in the case of China it is a rapidly growing labour market. Reductions in rural employment and urban drifts are also a feature of these economies. Demographic issues also provide a challenge, and China, Mexico and Chile have also faced recent rapid increases in their labour forces. Labour market entrants in China will soon begin to decline (although the labour force will continue to grow for some years) under the impact of the one child policy. Mexico also has achieved impressive outcomes in the reduction of its birthrate (World Bank 1998). Some of the advanced countries, notably Germany, will soon face the issue of a declining working age population.

## global economic change and VET

It can be argued that the expansion of education from the initial period of systematisation (late 19th century) over the next century was not directly related to technological changes in industry. Skilled labour remained largely trade-based, and the majority of industrial labour was low-skilled and dominated by Taylorist and Fordist methods of management and industrial organisation. Under these circumstances it was sufficient for advanced knowledge to be limited to elites

(Hobsbawn 1969). The education systems that today provide the platforms for VET were fundamentally developed during this period. Global change, therefore, provides challenges for these VET systems, as well as the associated labour market and industrial structures and practices. In virtually all VET systems there are observable tensions between traditional structures and cultures and the demands of the 'new' economy.[16]

The massive advance in knowledge and technology over the past four decades have magnified the importance of skills formation, or human capital, across the working population at large. Fordism was built upon sameness on a mass scale. The information age has led in the workplace to the challenges of constant flexible production methods, product and production innovation and the generation of new knowledge in the workplace (Zuboff 1984) as well as the associated concepts of the 'learning organisation' and 'total quality management'.

Japanese enterprises generally have been recognised as responding most vigorously to these new circumstances with their techniques of multi-skilling, quality circles, just-in-time techniques, flatter management and multi-functional teams. As Green (1999) notes, these techniques relate to peculiarities of Japanese culture and company structures (see below) and are not easily copied. German enterprises have also been regarded as being well equipped for these developments through high levels of skills formation and a capacity to produce high quality products.

## high skills and social inclusion

More recently globalisation has raised further challenges for economies and for the concept of skills formation. There is a growing argument in some organisations, including international organisations, that 'human resource development and training play a major, if not decisive, role in promoting economic growth with equity; they benefit individuals, enterprises, and the economy at large.' (ILO 2000). This linkage between social and economic inclusion and the overall performance of economies has provoked some discourse on the link between broader or macro economic policy and the processes of skills formation, or elements of micro economic policy.

Green and Sakamoto (2000) broadly hypothesise four types of high skills strategies characterised primarily by the predominance of:

- high skilled elites (USA and UK)
- high skilled elites, high skilled diffusion and relative income equality (Germany)

- high skills diffusion, relative income equality, and labour intensity and co-operation (Japan)
- rapid but uneven formation but with high labour intensity and co-operation (Singapore)

As indicated in our study, each of these countries faces its own set of challenges as the global economic 'rules' change at a rapid rate. The limited skills diffusion in the UK and the USA are exacerbating social tensions related to employment modes and income distribution (e.g. see Grogger 1998). The high skills diffusion of Germany underpinned by the Dual System has been under constant pressure to deregulate and allow greater flexibility. The foundations of the Japanese economy of high firm loyalty are breaking down as enterprises seek more creative and autonomous workers. The statist culture of the Singapore economy is also under pressure in an increasingly complex world economy.

A link between the education and skill levels of the labour force and economic performance now is acknowledged by most governments and their industrial partners. In recent years tensions between the goals of economic competitiveness and more even wealth and income distribution, especially in the liberal economies of the UK and Australia, are now leading to a concern about social inclusion. Measures to strengthen the role of VET in skills formation and economic competitiveness are considered as contributing to greater social inclusion (e.g. see Kirby 2000; Tucker 1990; DfEE 2000). These considerations raise new questions about the role of the state in TVET, especially in juxtaposition to the strong push for industry leadership throughout the 1980s and 1990s. Questions about the role of the state also are being accompanied by others concerning the rights and the responsibility of the individual. The idea of mutual obligation that underpins recent policies in the UK and Australia is also emerging in Europe.

In part this concern is a response to the general assault upon the social democrat–corporatism model following the disintegration of European communism in the early 1990s. The successful re-engineering of this model in countries like Denmark appears to have inspired some similar approaches in other parts of Europe.

A wide range of commentators (e.g. Porter 1990; Reich 1991; Streek 1997) have argued that nations face choices about the nature of their industrial and social policies in the post-industrial age. The crude argument is that there is a fundamental choice between policies that are designed to produce high skills and

high wages and rely upon high product quality and innovation for competitiveness, or those that will rely upon low wages and low costs for competitiveness. The choice is influenced by ideological dispositions, plus the tendency for the low wages option to offer quicker returns. Regini (1995) argues that nations are taking divergent paths including protected markets, growth through takeover, efforts to acquire monopoly power, cost cutting and new forms of Fordism. Keep (1999), therefore, argues that Fordism is alive and well in the UK, and sustains a version of Finegold's low skills equilibrium. He argues that Fordism has been transferred to the service industries, such as retail and banking, and that British industries concentrate upon low quality products for a domestic market dominated by relatively low paid workers. A low skills economy, where most industries continue to seek low cost/low skilled employees, and invest little in training and research and development, is not challenged by a sustained supply-side approach to training, which has been pursued by successive UK governments over the last two decades. The last demand-side intervention ended with the abolition of the industry training boards in the early 1980s.

Judged against current economic trends the USA and UK approach has the merit of substantial economic growth and falling unemployment rates. Green and Sakamoto argue, however, that this is somewhat a cyclical phenomenon, and that the high skills elite approach hides underemployment, through the tendency towards part-time and casual employment, as well as low wages that have other social and eventually economic consequences.[17]

**table 1: wage spread across four countries, 1980s and 1990s**

| | 9th decile of income over 5th decile | | 1st decile over 5th decile | |
|---|---|---|---|---|
| | *Early 1980s* | *Early 1990s* | *Early 1980s* | *Early 1990s* |
| Germany | 1.63 | 1.64 | .61 | .65 |
| UK | 1.72 | 1.99 | .68 | .59 |
| Japan | 1.63 | 1.73 | .63 | .61 |
| USA | 2.16 | 2.22 | .45 | .40 |

source: W Streeck 1997

Despite a period of economic growth, wage disparity has increased in the USA and the UK at a faster rate than in other countries, including Germany, which has experienced significant growth in unemployment, as indicated in table 1. This is consistent with earlier analyses (e.g. Finegold and Soskice 1990) that British policy, especially since the 1980s, has been towards a low skills approach.

Finegold (1993) described this as a low skills equilibrium of low wages, low capital investment, low productivity, low product quality, low skills and low prices. Curtain (1996) has argued that Australia is locked into a similar equilibrium.

Changes in industry and enterprise structures have complicated the nature of skills formation. For example, the demands of flexibility and creativity are leading to questions about the means of skills formation in Japan. Commentators on Japanese enterprise practices (e.g. Ishida 1998) are beginning to question the capacity of the Japanese education and training system to produce the more flexible and creative skills that will be needed by enterprises of the future. The high trust culture of the Japanese (Fukuyama 1995) and the social partnership model of the northern European economies may have fundamental weaknesses as foundations for flexible and creative skills formation. Mason and Wagner (1988), for example, have found that the systems of skills transfer in UK industries appeared to lead to greater innovation than in German industries.

## comparative questions

Although this study is very broad and covers very different nations and regions, it is useful to pose a set of questions for the comparative analysis. As we have argued, the focus for a comparative study of TVET should be on the impact of change. The following are posed at the start:

- What are the trends in TVET policy in response to global economic and social change?
- What are the emerging relationships between TVET and secondary education?
- How is TVET policy linked to broader social and human resource policies of nations?
- What linkages are there between the role of the state in TVET and the role of the state in economic policy?
- What forms of recognition are being developed?
- How is change influencing the nature and type of skills development?
- What is the impact of change upon systematisation?
- Are returns pursuing a high skills/high diffusion model?

# nine systems and their characteristics

The most obvious weakness of the comparative study, and one that is open to the most craven manipulation, is its selectivity. All fields of public policy have to their avail a selection of international cases that can apparently help to justify preferred ideological positions. The field of VET is no different, as it contains differences of views on matters related to finance, regulation and governance, and access.

Our study attempts to avoid this selectivity in a number of ways. Firstly, we examine a wide variety of national VET systems that cover the ideological spectrum on most of the major issues. Our cases include the corporatist and highly regulated German systems and the statist French system on the one hand, and the neo-liberal British approach and the radical market-oriented Chilean system on the other. Secondly, the focus of our study is the comparative response of VET systems under pressures for change. We argue that this is the abiding theme of recent VET policy and an examination of country responses to these pressures can provide the most instructive comparative lessons for VET in Australia.

Thirdly, this theme of pressures for change is related to our attempt to locate 'VET systems' within the broader historical, social, political and economic contexts of countries. By definition our study is examining the outcomes of the process of systematisation. We have argued that systemisation, especially of IVT, has a strong association with the state and the processes of state formation. In the case of China, for example, this has been fairly recent. By contrast, the pressures for change are essentially economic in the form of labour market changes and global and country internal economic changes. It is likely, however, that globalisation pressures will act to de-systematise VET, especially in China where the government is actively pursuing policies of regional economic development and where large disparities between income per capita are emerging (World Bank 1999c).



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Fourthly, we have attempted to examine VET from a regional perspective. We have chosen the three regions of Europe, the Americas, and East Asia. Two of these regions are characterised by economic pacts: a powerful one in the case of the European Community (EC) and a less powerful but none the less significant one in the case of NAFTA.[18] The third region, East Asia, has been identified by its rapid economic growth and its more informal regional economic integration.[19]

The nine systems are spread across the globe and provide enormous contrasts in social, economic and political contexts. In each of these cases, however, there is a central government that is actively developing and implementing policies designed to enhance skills formation in order to raise the level of productivity and competitiveness of domestic industries so that they can compete economically in the global market. In all cases this state action has engaged the industry partners of business and organised labour. In many cases the state action is also directed towards the alleviation of a chronic problem of unemployment and in particular youth unemployment. In some cases the state intervention is also directed towards the development of social capital as globalisation threatens the social underpinnings of the communities that form nation states.

Our study, therefore, attempts to describe the interactions of the state with the elements of the civil society that can broadly be described as the 'VET systems'. As has been argued above, to a large extent these systems, as adjuncts to the broader education systems, have evolved to reflect the needs of nation states, as comparatively recent phenomena. In many of our cases, VET has only recently been systematised with the stronger involvement of the state in apprenticeship systems, the establishment of state-issued qualifications and qualifications frameworks, and large increases in state funding.

VET 'systems', as the literature almost universally describes them, therefore, have been defined through nation states. The literature, however, mostly fails to acknowledge the dynamic nature of the concept of VET 'systems': the fact that they have only recently evolved and that in contrast to broader education systems they are evolving rapidly. Given the inner complexity of VET systems, it is necessary to examine them through the mechanisms of the state-endorsed structures and associated interventions of the state (although this may prove fruitless in the longer term). But in doing this, and also in contrast to broader education systems, it is important to examine VET systems through the relationship between the state and the other major players, the industry partners. It is this

relationship that will best point to systemic characteristics and likely responses in the context of rapid economic change.

As the Blair Government's 'Third Way' signals, the relationship between the state and civil society will change under the impact of global economic and social change. Education systems are amongst the last of the elements of civil society to respond to changed circumstances (Ringer 1979). They are strongly connected to social structures that tend to be enduring. VET systems, with their closer relationships to the state, can therefore provide the vanguard in areas such as the VET market, accountability for outcomes and state funding, flexibility of provision, client orientation, customisation, knowledge and skills transfer, and the relationship with industry and other elements of civil society. In short, the comparative study of VET systems can provide a window to the future for broader education systems.

Our study does not provide the full window. That will need to come later. But it attempts to lay the foundation through a broad review of the most recent literature supplemented with discussions with senior officials within their systems. Given the variety of sources direct comparisons are difficult. Nevertheless we have attempted to describe the main characteristics of the nine systems, the role of the state in each of them, and their responses to changes in economic conditions.

# Europe

Barrett and Dewson (1998) have contrasted the 'corporatist' approach of the German initial training system, the 'interventionist' systems typified by France, and the 'voluntarist' or market-led approach in the UK. Since World War II the economies of these three nations have been dominant in Europe, with Italy as a more recent aspirant. They display important historical differences in the role of the state and its relationship between the education and training systems and in approaches towards economic management. There is also an abundance of literature (e.g. Piore & Sabel 1984; Finegold & Soskice 1988) that describes important differences in the structure, financing and management approaches of enterprises in these three nations.

There is a number of other European countries that have attracted a considerable amount of interest in their education and training systems and their apparent relationship with economic performance. In particular, the Scandinavian nations and more recently Ireland have attracted interest related to their economic performance. The three nations of France, Germany and the UK, however, do provide strong contrasts in their approaches to the key issues of industrial skilling and employment.

There is an abundance of comparative literature on VET in Europe, especially that produced by the European Centre for Vocational Education Research (CEDEFOP). Europe has a high concentration of advanced economies and the strengthened role and expanded membership of the European Community makes it a rich source for the comparative study. The advanced economies of Continental Europe have been dominated by social democratic governments since the Second World War. Many of these economies have been based upon forms of social partnerships between industry and government. In some cases these are neo-corporatist models, as in Germany, but in others they have existed alongside more liberal and open political philosophies, such as Denmark. These social partnerships have played a key role in TVET across much of Europe, especially in those nations that have large apprenticeship systems. The strong liberal and voluntarist traditions of the UK, resurgent as neo-liberalism in the 1980s, has been the main exception to this model. The French statist model is also a partial exception.



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With the collapse of communism in Eastern Europe, the social democratic model has come under pressure. There has been pressure upon government spending and upon the regulated labour markets that are associated with TVET, especially IVT. Changes in sectoral employment patterns, firm size and the financial structures of large enterprises have all reduced the optimal conditions for TVET, which are based upon a combination of historical social contracts and regulatory arrangements. Further pressures have come through the growth of credentialism and academic drift. These problems have been exacerbated through the mediocre performance of many of the economies over the past decade and the associated growth in unemployment (see table 3 in the appendix). Further problems are likely to emerge through current demographic patterns. Projected dramatic drops in the working-age population are likely to place new sets of pressures upon CVT.

Apart from being amongst the largest of the European countries, Germany, France and the UK provide strong contrasts in underlying social and political philosophies and the role of the state. The strong social partnership upon which TVET is built in Germany compares to the statist approaches in France. A limited role of the central state in Germany compares with a high degree of centralism in France. A high degree of separation of TVET from the mainstream education system in Germany compares with a close relationship in France. TVET in the UK, on the other hand, has been dominated by laissez-faire and voluntarist traditions. As a 'mixed model' there are contrasting and even conflicting themes over the past decade of a strongly tracked education system, a voluntarist tradition in TVET, a high degree of labour market deregulation, but a considerable amount of policy initiative in TVET combined with a growing centralism. All three nations have become acutely aware of their economic competitiveness and have faced various periods of high unemployment, by post-war standards. They, therefore, provide some useful contrasts in the context of change and the unique dynamics of the European Community. The three countries also have established a degree of mutual recognition of VET qualifications (CEREQ 2000), which is of interest given the language separation and their historical rivalries.

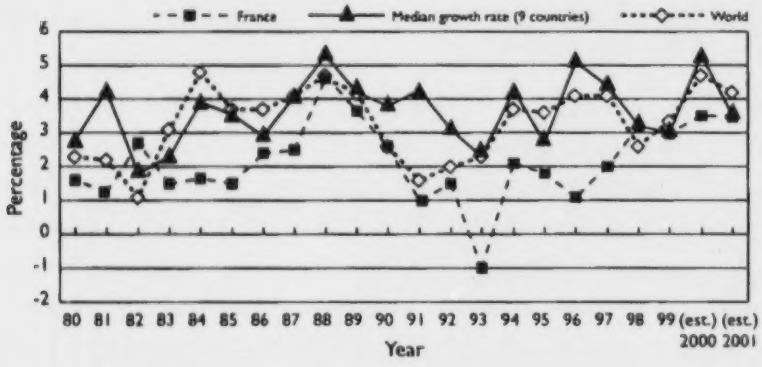
## France

### the economy

Amongst OECD and Western European countries France's economic performance has been mixed. During the post-war years the French economy has generally

outperformed that of the UK but has not matched the industrial dynamism of Germany. During the 1990s, the economy managed only moderate growth rates (1.7% average annual growth between 1990 and 1999), yet in 1998 (3.3%) and 1999 (2.9%), growth rates were above the nine-country mean and the OECD mean. GDP per capita fell from $26 396 (US) per capita in 1995 to $23 757 in 1997 and has only recently increased to $23 954 in 1998.

**figure 4: GDP growth rates 1980–2001**




source: IMF, World Economic Outlook Database 2000

Unemployment remained high as indicated by an unemployment rate between 1994–1997 of 12.3% and youth unemployment of 24.4%. France is one of the few OECD countries with a worse record in youth unemployment than Australia over the past decade. As in Germany, the labour market is strongly regulated. One example of this is the recent legislation to establish a 35-hour working week.

Within the youth labour market, however, wages are relatively high in comparison to those in Germany (as exemplified by apprenticeship wages in table 7, p.51). Some attribute the very high youth unemployment to this factor. The structure of French industry may have also contributed to high youth unemployment. France has maintained a very large (and curiously elite—Bourdieu 1995) public sector which is both highly credentials-based and as a declining sector has offered little entry-level opportunities.

The agricultural sector, although politically powerful and economically important, has had declining employment. During the period 1992–1997, the



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agricultural sector employed 10% of the labour force compared to 16% in 1980 (2000 World Bank Indicators).

**table 2: economic and education indicators**

| | France | nine-country median |
|---|---|---|
| Population (1999)[1] | 59.1m | - |
| GDP per capita ($US) (1999)[2] | $24 630 | $24 715 |
| GDP annual growth rate (1990–99)[1] | 1.7% | 2.7% |
| Unemployment rate (1994–97)[3] | 12.3% | 4.9% |
| Youth unemployment rate 15–19 years (1998)[4] | 24.4% | 15.2% |
| Average annual labour force growth rate (1990–99)[1] | 0.7% | 1.2% |
| Public expenditure on education as a % of GNP (1997)[1] | 6.0% | 4.8% |
| Net enrolment ratio–secondary education (1997)[3] | 99.0% | 92.0% |
| School expectancy (1998)*[4] | 16.6 yrs | 16.6 yrs |

* all levels of education combined and education for children under the age of five is excluded.
sources: (1) World Development Report 2000/2001; (2) IMF World Economic Outlook Sept. 2000; (3) World Development Indicators 2000; (4) OECD Database

France also has lacked the apprenticeship system of her Germanic neighbours (Germany, Denmark, Switzerland, and Austria) that has underpinned the youth labour market in these countries. The traditional weaknesses of the apprenticeship system result from its historical base in the French revolution, which destroyed much of the artisan class in French society. Consequently the French Government has invested heavily in education and training.

The role of the state is central in both education and training. The government also has actively intervened in the labour market and has attempted to create employment through the public sector. In 1998, 151 926 jobs were created in local authorities and associations, the Education Ministry and the National Police (CEDEFOP 1/1999). Similar intervention has been taken by the government to establish apprenticeship places within the public sector. These measures contrast with those of Australian Governments, which have reduced their youth recruitments.

The level of public spending on education at 6% of GNP is above the nine-country mean of 4.8%. The breakdown of expenditure by level of education in table 3 shows significantly higher expenditure in lower secondary education and upper secondary education than the nine-country median and OECD median.

**table 3: expenditure per student ($US) on public and private institutions by level of education, 1997**

| | France | nine-country median* | OECD-country median |
|---|---|---|---|
| Early childhood | $3462 | $3603 (7) | $3463 |
| Primary | 3621 | 3470 (7) | 3851 |
| Lower secondary | 6087 | 3983 (5) | 4791 |
| Upper secondary | 7167 | 5492 (5) | 5790 |
| All secondary | 6564 | 4927 (7) | 5274 |
| Post-secondary non-tertiary | 5163 | 8001 (2) | 5337 |
| All tertiary | 7177 | 9390 (7) | 8612 |

* Data for all countries is not available. Figures in brackets indicate how many countries for which data was available.
source: OECD Education Database, table B4.1

## the education system

France provides the strongest case for Green's (1990) thesis that education and training systems were formed mainly upon the basis of the needs of the state. The Napoleonic stamp upon the French education and training system is still observable. Much of the French system was built for the twin purpose of nation building through the establishment of a national language and culture (Feigenbaum 1989) and the military purposes of the regime. Apart from the foundations of the school system, these state purposes were manifest in the establishment of technical training schools for the military engineering purposes of road and bridge building and the construction of military equipment.

The legacy of this formative period remains today. Many of the institutions established during the Napoleonic era, including the elite technical training institutions and even the baccalauréat still exist. As well, the statist tradition of a highly centralised administration has been the major characteristic of the French education and training system.

Figure 5 provides a simplified representation of the French education and training system. The foundations of the system are the common forms of primary and lower secondary education. Most young people complete a Brevet in the colleges before proceeding to upper secondary education, training or employment. At the upper secondary level, students take a baccalauréat of one of three forms: generale, technologique or professionelle. These equate with general, technical and vocational.

Students may also enter an apprenticeship or undertake a full-time training program in either the *lycees professionnels* or a specialised training institution. The training programs are either the *brevet d'etudes professionnelle* or the more advanced *certificat d'aptitude profesionnelle.*

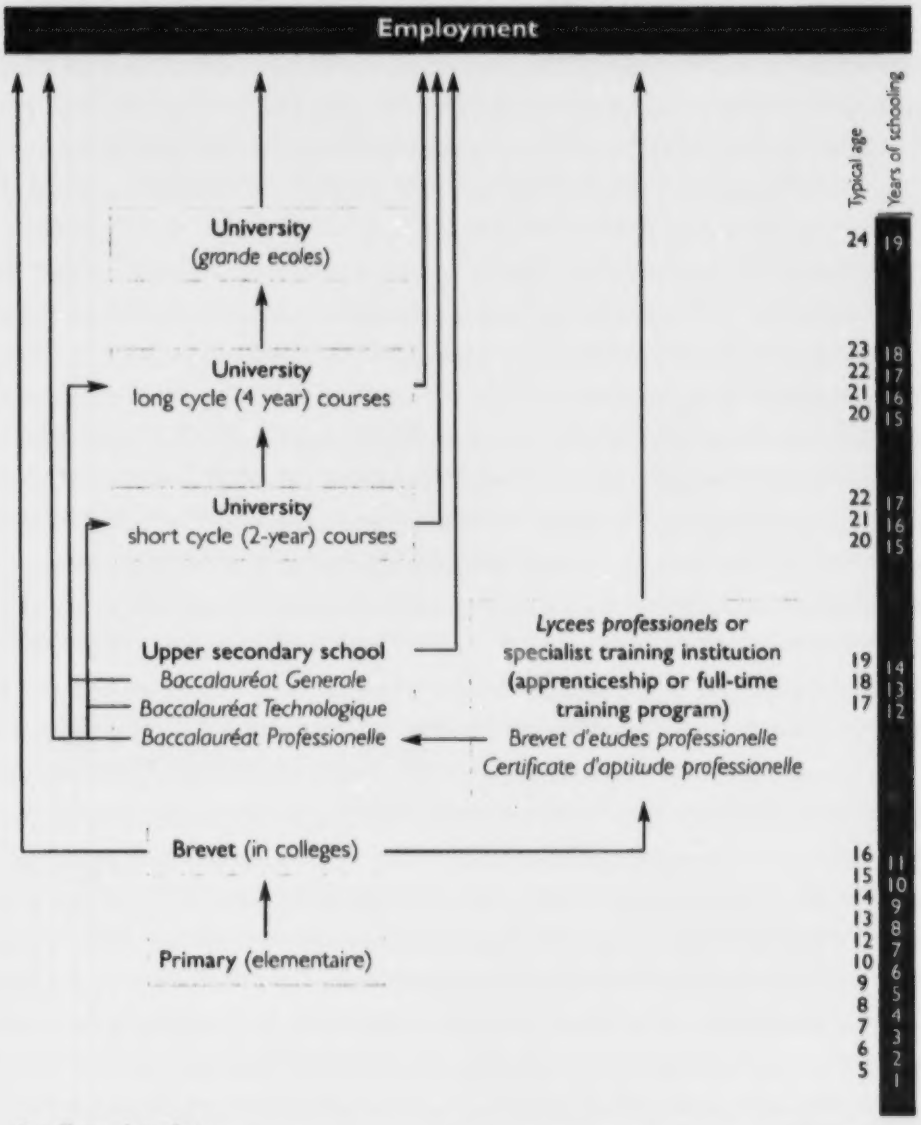
The baccalauréates are set at the same level, but there is a clear status difference. They each have several lines, and graduates from the *baccalauréat generale* will mostly enter university to undertake a long cycle (four years) degree. Some will enter the prestigious *grande ecoles.* To do this many stay at the lycees to complete a preparatory course. *Baccalauréat technologique* students will also enter universities, or one of the other 'short cycle' (two years) tertiary institutions. The short cycle courses articulate with the long cycle courses. *Baccalauréat professionelle* students will enter the labour market, but an increasing number have entered tertiary (mostly short cycle) institutions. The Government has established a policy objective of 80% of the age cohort achieving a minimum of a baccalauréat level qualification.

## initial vocational training

Initial vocational training (IVT) in France has traditionally been dominated by institution-based training programs, the *brevet d'etudes professionelle* and *certificate d'aptitude professionelle.* These programs have existed side by side with a highly academic and prestigious education system, and a weak apprenticeship system. French education is extremely hierarchical, and has a strong link with the administrative elite. Educational traditions are encyclopaedic, with a respect for factual knowledge and a corresponding lack of respect for technical skills. VET, both institutional and work-based, therefore has suffered in this environment.

Consequently, successive French Governments, conscious of France's relatively poor economic performance and high levels of youth unemployment, have attempted to reform this in two ways. Firstly, efforts have been made to introduce technical and vocational elements into the prestigious award of the baccalauréat. Secondly, efforts have been made to reform institution-based training and to introduce other forms of training that combine institution-based training with periods of work placements. Thirdly, successive efforts have been made to reform and expand the apprenticeship system.

**figure 5: the French education and training system**




## the Baccalauréat

There have been three sets of innovations within the baccalauréat: the establishment and expansion of the *baccalauréat technologique* and the development of the *baccalauréat professionelle*. The *baccalauréat technologique*, which has been long standing, could not be regarded as a VET program, despite



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the OECD's classification of it as school-based vocational. Like all the baccalauréat it is a 'group award', oriented towards technical courses within tertiary education.[29]

The *baccalauréat professionelle* was established in the late 1980s as a work-based route that could capture the prestige of the baccalauréat. It is also a group award and has a number of industry-based lines or programs. It is a three-year program during which students spend 16 weeks in the workplace. The program has expanded to about 9% of all baccalauréat students and has attracted a good deal of international interest. Graduates can enter higher education and, with the high levels of youth unemployment, about 50% enter mostly short cycle tertiary courses. Earlier it had good labour market outcomes (Eckert 1993), but the continued deterioration of the youth labour market has been responsible for an increase in tertiary entry.

## college-based courses and alternance

The most common diploma offered has been the *certificat d'aptitude professionnelle*, which provides the main training for traditional craft trades in manufacturing and service occupations. At the same level, the *brevet d'etudes professionnelles* is being increasingly promoted and provides broader training for more modern occupations. More recently, the *brevet d'etudes professionnelles* has led, after two years, to the *baccalauréat professionelle*, which provides training for highly skilled workers.

It is possible for students/trainees to progress through these courses into degree courses, not only ones offered under the Ministry for Education, but also those provided under Ministries of Agriculture, Health and Youth, as well as of Chambers of Commerce. Altogether a total of 1400 different degrees, diplomas and certificates were offered in 1996. Most diplomas are established by the Ministry of Education, after consultation with representatives from employers and trade unions in the framework of the *Commissions Professionnelles Consultatives (CPC)*. The Ministry sets the curriculum and examinations regulations. The curriculum includes academic and technical subjects and practical training. Examination boards include representatives from the education sector and industry (Steedman et al. 1997).

Entry into the labour market for VET graduates (including apprentices) is governed by industrial agreements. These agreements (more than 300 at the national level) are specific to each industry. Educational qualifications tend to be taken increasingly into account as a criterion for determining an employee's

position within award structures. This is now the case for 90% of agreements. In manufacturing industries, the *certificat d'aptitude professionnelle* is a normal requirement for skilled workers and craft occupations. The relationship between an educational qualification and an occupation is less clear in the service sector (Steedman et al, 1998).

There are three types of contract that combine theoretical education in a school or college with practical training in an enterprise: *contract d'orientation, contract de qualification* and *contract d'adaptation.* In addition, there are pre-qualifying and qualifying courses for first-time jobseekers with no qualifications: *actions de formation alternee,* or alternance training (CEDEFOP 1999b). The French distinguish between the predominantly work-based apprenticeships and 'alternance', that is, predominately institution-based training with periods of work placement.

## apprenticeships

Traditionally apprenticeships have had a low status in France and were a pathway for the less academic students for the least prestigious occupations. During the 1980s governments became increasingly concerned with France's weaker industrial competitiveness and higher level of youth unemployment in comparison to those of Germany, which were partially attributed to the success of the *dual system.* Successive French governments have attempted to renovate and expand apprenticeships and to develop new forms of *alternance.* At the same time, there has been a move towards *decentralisation* by giving increased responsibility for VET to regional authorities. Measures have included:

- the opportunity to take all vocational diplomas through apprenticeships (1987 law)
- opening of apprenticeships to the private, non-profit sector (1992 law)
- the provision of financial incentives for enterprises and the organisation of promotional campaigns
- setting an objective of a minimum educational qualification for every young person and allowing vocational institutions to open classes or training units for apprentices (1993 law)

Apprenticeships offer a range of pathways (Pérot 1998). One is through the *baccalauréat professionelle.* Another is from *brevet d'etudes professionnelles* to the *baccalauréat professionelle* and BTS (two-year post-secondary diploma). These new pathways allow for a combination of different fields of training that can supplement each other.

*Centres de formation d'apprentis* were established under the control of the Ministry of Education to support apprenticeships. They now may be run by training institutions, Chambers of Commerce, municipalities, enterprises or associations through agreements with state or regional authorities. They are managed by a board that includes representatives from employers' organisations and trade unions. (Centre INFFO 1998). Apprentices have to spend at least 400 hours per year in these centres, and the average varies between regions (Dépêches de l'AEF 1998). The age of admission is normally between 16 and 25 years but 15-year-olds are also allowed to start an apprenticeship if they have completed Grade 9.

Apprentices can be employed by private companies or by government institutions, under a contract of one to three years' duration (normally two years). During their training period, apprentices earn a wage that varies from 25% of the minimum wage for the first year of their contract for under 18-year-olds to 78% for the third year for over 21-year-olds.

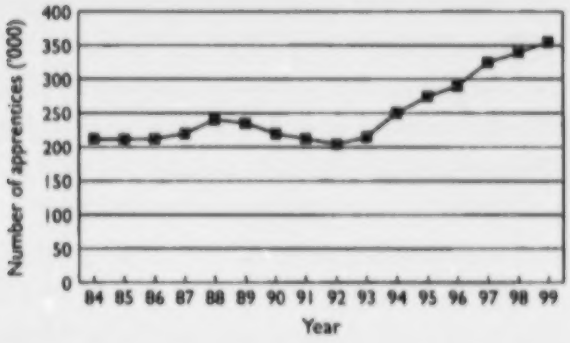
Employers of apprentices receive an allowance of 6000 francs and do not have to pay the employers' contribution to the social security system. In addition, employers from the private sector get a training allowance of 10 000 francs if the apprentice is below 18 years of age and of 12 000 francs at 18 and above. Employers receive an additional allowance of 50 francs per hour of training above 600 hours per year and up to 800 hours. A supervisor (*maitre d'apprentissage*) should be available in the enterprise.

There have been considerable variations in the numbers of apprentices. From 1945 to 1968 there was a substantial rise, as a result of demographic and economic growth. This was followed by a steep decrease between 1968 and 1975. This appeared to relate to a growth in school retention rates and to the development of new training courses. During the 1980s apprenticeship numbers, under the impact of government intervention, stabilised (Pérot 1998) as indicated in figure 6. Into the 1990s these policies had a greater impact, with the number of apprentices increasing by 45% between 1992 and 1996 and 20% between 1996 and 1999. The rate of growth was slower in 1999, due to the impact of other types of training en alternance (Ministère de l'emploi 1999). The employers movement (*Mouvement des entreprises de France*) has established an aim that by the end of 2000, 500 000 young people should have apprenticeship or alternance contracts (CEDEFOP 3/1999).

Over 40% of apprentices are 16 or 17 years of age, and the proportion of women among apprentices is stable at around 28%. The educational levels of

new apprentices tend to be higher then previously, and the proportion of those who have earlier completed at least a baccalauréat had increased from 11% in 1995 to 17% in 1998.

**figure 6: annual number of apprentices, 1984–1999**




source: CEREQ 1996; Ministère de l'Education nationale 1999.

Trial programs have been initiated at the regional level (especially in the *Rhône-Alpes* Region) for combining full-time schooling and apprenticeship within vocational lycees (Dépêches de l'AEF 1999). Contractual agreements exist between the *Centre pour la formation d'apprentis* and the lycees, and a training unit, established within a vocational lycee, provides the training facilities and the educational supervision. This type of agreement requires a closer co-operation between the schools and the employers, who have control over the flow of apprentices through recruitment. This scheme, called 'one plus one', means that the first year of training takes place within the school while the youth is still considered a student. The second year, he/she becomes an apprentice (Ministère de l'Education nationale 1998). It does appear that the various reform measures and labour market linkages of apprenticeships have improved their image in France (Bertrand 1993). This also is seen as being due to the extension of apprenticeships into higher levels (INFFO Flash 1999).

Approximately 63% of holders of a new contract are students and 25% have an earlier apprenticeship contract. The majority (72.7%) of apprentices are preparing for *certificat d'aptitude professionnelle* and *brevet d'etudes professionelle* diplomas, but the proportion of those preparing for baccalauréat or higher level diplomas has increased. A number of apprentices take several contracts, in order to prepare for either a specialised certificate (*option*

*spécialisée*) or a diploma at a higher level. A growing number of contracts include diplomas at the post-secondary or higher level.

Although apprenticeships are concentrated upon traditional industries such as construction, this is changing. Apprenticeship contracts are concentrated upon small enterprises (less than 10 employees), with 69% of contracts in 1998 compared with 71% in 1997. The percentage of contracts signed by firms employing more than 50 employees is low (14%) but increasing.

As in other countries, the supply of training places is a difficulty. There are difficulties in some regions in convincing new firms to recruit apprentices and to attract young people to accept apprenticeships in certain areas of training. At the same time, some training centres are working to full capacity and cannot accept any more apprentices (Dépêches de l'AEF 1998).

## financing of apprenticeship training

Apprenticeship training is financed by the regional authorities or by the state through an apprenticeship tax. It is therefore free for the employer and for the apprentice. An apprenticeship tax was established in 1925 and is probably the oldest in the world.

The system is particularly complex as the tax is used for a variety of purposes and not only for apprenticeships. Apprenticeships are also financed by other sources (CEDEFOP 2000). The tax was initially intended to finance both initial and vocational training, school-based and enterprise-based, but the 1971 law on continuing training restricted the scope of the tax to initial training (Bertrand 1993).

All enterprises are required to pay the tax, except those that employ apprentices with a regular contract and whose income does not exceed six times the minimum wage, and those in the education and training sector. The rate is 0.5% of the gross payroll. Recently some modifications have been implemented. Now, at least 40% of the amount of the apprenticeship tax has to be allocated to apprenticeships, but the rest may be paid by employers directly to various types of training institutions.

Financing of apprenticeship is controversial. It is costly and involves powerful interests. One issue has been that the increase in apprenticeship places has led to a decline in revenue (Centre INFFO 1998). The system is extremely complex and there is a lack of transparency and accountability (INFFO Flash 1999).

## continuing vocational training

Prior to the growth of apprenticeships and alternance, the role of the enterprise in IVT in France had been minimal. On the other hand, the twin impact of state intervention through legislation and collective bargaining has placed considerable obligations for CVT upon enterprises. As Abentur and Mobus (1996) have noted 'the principle of employers' legal obligation to finance training has been imposed upon French companies more intensively and for a longer period of time than elsewhere. Consequently the costs to enterprises for in-company training has been 2.2% of the wages bill, compared with 1.2% in Germany.

Consistent with industrial agreements in France, workers are entitled to *conge individuel de formation* (personal training leave) for the training of their choice. Enterprises are also required to have training plans, and training activities included within these plans are considered to be part of paid work. The training plans are supported by the *capital de temps* (time capital), which is a fund available for training under the training plan. Employers or employees can also request a *bilan de competences* (skills review), which can help enterprises and employees prepare career plans and training projects. These activities are financed by compulsory contributions from enterprises. Enterprises with fewer than 10 employees contribute 0.25% of their wages bill, and those with 10 or more employees must contribute 1.5% (CEDEFOP 1999).

Most CVT comes under the authority of the Ministry of Labour and, typical of most European countries, this includes a strong involvement of the social partners. Levies are collected by agencies (*organismes paritaires collecteurs*—joint collection agencies) administered by the social partners, and there are legal requirements for employers to consult with employees' representatives in the enterprises. The close connection between CVT and industrial agreements is demonstrated by the fact that the recent negotiations over the 35 hour week also included negotiations over a 'training insurance' system that would guarantee workers access to a period of training equivalent to 10% of their working lives.

Qualifications within CVT in France are issued mostly under the Ministry of Labour. They tend to have a stronger emphasis upon technical quality and skills and are based upon job or occupational specifications drawn up by the social partners through consultative committees. Qualifications still tend to be exam based, but recently greater flexibility for work-based experience and skills recognition has been introduced (Merle 1997). Authorities are also looking towards the introduction of the recognition of prior learning (RPL).

CVT is more decentralised than IVT in France. The decentralisation is based upon the 'social partnership' model, and both central and regional government work with the *union nationale inter-professionnelle pou; emploi dans; l'industrie et le commerce* (UNEDIC—national multi-sector union of employment in industry and commerce). CVT has much greater flexibility at the regional level. An example of this has been the use of the British NVQs in some parts of northern France (CEDEFOP Dossier 1/98).

CVT in France, as in many European countries, is dynamic. There has been a succession of laws and innovations over the past decade (CEDEFOP/CEDEFOP Dossier 1995–2000).

Issues have included the need for greater flexibility, reduced complexity, access for target groups, costs, alternance/apprenticeships, and the training market. In 1997, there were 5500 private training agencies in France, representing 16% of all training agencies. In 1993, they provided for one third of all trainees and 46% of all training hours (CEDEFOP 3/1997). These agencies have their own federation (*federation de la formation professionnelle*), which, not surprisingly, believes that the training market is over-regulated (CEDEFOP 3/1998).

Given the state of unemployment in France, there have been numerous training programs directed at unemployed workers and young people. Issues associated with training for unemployed people have included wage levels and access to apprenticeships and alternance training. Most of these programs are funded and conducted by the central government, and expenditure on these programs increased 2.5 fold from 1987 to 1996. Some programs are conducted jointly by government and UNEDIC.

## issues

VET in France has traditionally been strongly institutionally oriented. Recent reforms have attempted to move it towards industry through a variety of means. There is evidence, however, that a considerable distance remains between the training institutions and the employers (Pérot 1998). The French labour market has always been highly credentials-oriented, and this has been reinforced by statist traditions that also reinforce enterprise-based hierarchies (Piore & Sabel 1984). Thus, while qualifications articulate strongly with a highly regulated labour market, there is a strong hierarchy in credentials and therefore a limited capacity to link education and training to enterprise and skills needs. These are the main dilemmas for VET in France. The strengthening of apprenticeships and alternance,

the recognition of work-based skills and prior learning, and greater flexibility in the design and delivery of VET are all designed to address this problem.

Equity is also a concern. A recent report proposes to give a higher priority to the training of less privileged youth and to establish an obligation to train within enterprises. It proposes to set up an individual right to get a certification of competencies and to strengthen the efficiency and the transparency of resources allocations. Another proposal aims at merging the apprenticeship contracts and the *contract de qualification* (Dépêches de l'AEF 1999).

Despite the strength of industrial agreements in France, their link with VET is not as powerful as in Germany. In reality, the social partners in France only have a consultative role, and there is a reluctance within industry to share the cost and the responsibilities.

On the other hand, the statist traditions and elitist and hierarchical nature of qualifications have limited the opportunities for developing the training market. Despite its growth, many private training providers are very small and have a tenuous existence (In CEDEFOP 3/1997). On the other hand, public training providers historically have not been accountable to the 'users' of the system but to the centralised authorities. This is still largely the case for IVT. The greater flexibility offered through decentralisation within CVT has seen some local attempts to be more client responsive.

Other issues include the very large costs of the system and its complexity. Moves for reform appear to be concentrated upon the individual's access to and right to training; better forms of recognition, including workplace experience; the strengthening of alternance forms of training; and the clarification of the role of the various players (CEDEFOP 2/1999).

The French 'system' is of considerable interest because of its historical relationships with the state and the education system. Its essential weakness has been a labour market that has a hierarchical relationship with education and training. The residual nature of VET qualifications is the outcome of this. Of particular interest in France is the growth of apprenticeships and alternance training. This contrasts with declines elsewhere, but it has come at the considerable costs of payroll levies and government investments. Also of interest is the strong role of the state in attempting to address problems, especially youth unemployment. A goal of stimulating a private training market within this context will be challenging.

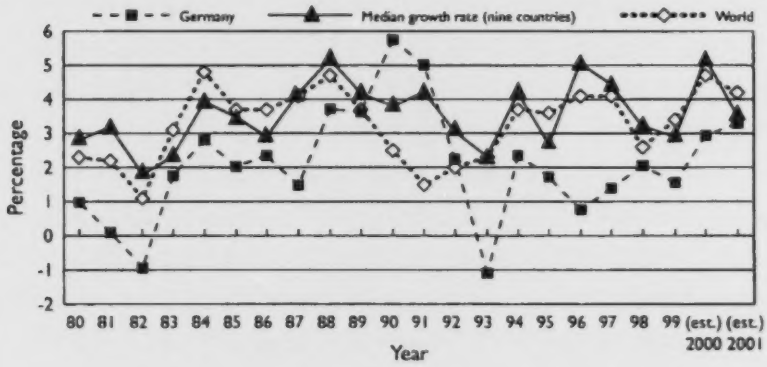
# Germany

## the economy

Germany, together with Japan, has been the international front runner in industrial growth and development in the post-war period. Its economic growth rate of 5.3% from 1953 to 1973 was second only to that of Japan. Germany has maintained a large manufacturing sector, especially in contrast to its main European economic rivals of the United Kingdom and France (35% contrasted with 27% and 25% respectively).

Under the pressure of reunification, declining labour force growth and structural difficulties, Germany's growth rate has fallen away over the past decade. Average annual growth in GDP declined from 2.2% for 1980–1990 to 1.5% for 1990–1999, and growth of 1.5% in 1999 was below the nine-country mean and OECD mean. As a consequence, the problem of unemployment has emerged, reaching 9.8% over the period 1994 to 1997, which contrasts with its relative absence prior to reunification. On the other hand, youth unemployment at 7.6% in 1998, remains relatively low by both EC and OECD standards, a factor largely attributed to the main element of Germany's initial training system, the Dual System.

**figure 7: GDP growth rates 1980–2001**




source: IMF, World Economic Outlook Database 2000

*The intention of the Dual System of vocational education and training is to give young people with widely differing initial qualifications the opportunity of training for the approximately 350 recognised training occupations. Formally the only precondition for access to vocational training is completion of lower secondary schooling. The period of training is generally three to three and a half years. It may be shortened for young people with upper*



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*secondary leaving certificates and for high performance trainees. The trainees receive training pay averaging about a third of the wages of skilled workers. In the Dual System young people can acquire vocational skills and industrial experience in legally recognised occupations and, by means of (obligatory) part-time vocational school attendance one or two days a week, they can also improve their theoretical knowledge and, to a lesser extent, their general education as well.* (Burke & Reuling 2002)

Germany's approach to the processes of skills formation has been subject to more international examination than any other country during this period. It has been widely recognised in the literature as the classic high skills economy, combining high skills, high levels of value added and high wages (Finegold & Soskice 1988, Streeck 1997).

Despite the costs of reunification, Germany has maintained a high GDP per capita ($25 381 in 1999) and a wage spread more even than most other OECD countries, including Japan (see table 8 in the appendix). Levels of productivity in German industry are relatively high by OECD standards but are higher when calculated at an hourly rate, as indicated in figure 8.

**table 4: economic and education indicators**

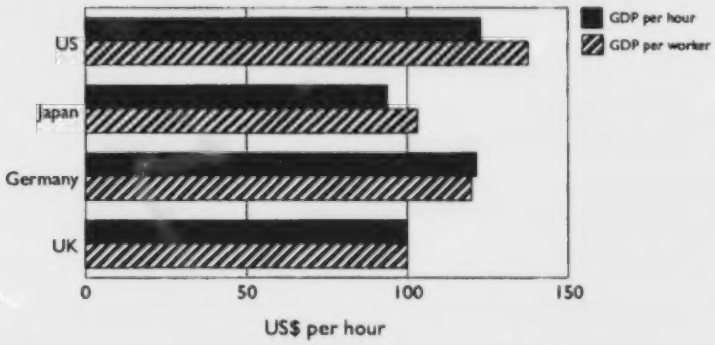
| | Germany | nine-country median |
|---|---|---|
| Population (1999)[1] | 82.0 m | - |
| GDP per capita ($US) (1999) [2] | $25 783 | $24 715 |
| GDP annual growth rate (1990–99) [1] | 1.5% | 2.7% |
| Unemployment rate (1994–97) [3] | 9.8% | 4.9% |
| Youth unemployment rate 15–19 years (1998)[4] | 7.6% | 15.2% |
| Average annual labour force growth rate (1990–99)[1] | 0.4% | 1.2% |
| Public expenditure on education as a % of GNP (1997)[1] | 4.8% | 4.8% |
| Net enrolment ratio – secondary education (1997)[3] | 95.0% | 92.0% |
| School expectancy (1998)*[4] | 16.8 yrs | 16.6 yrs |

* all levels of education combined and education for children under the age of five is excluded.
sources: (1) World Development Report 2000/2001; (2) IMF World Economic Outlook Sept. 2000; (3) World Development Indicators 2000; (4) OECD Database

These data reflect a number of features about the German economy and society. Skill levels are more consistent across industries than in Japan, which still maintains exceptionally high levels of productivity in key manufacturing sectors. The more even spread of wages and skill levels and the higher comparative GDP per hour than GDP per worker reflect the neo-corporatist traditions and structures of German industrial culture. The role of the 'social partners' in industrial

organisations, including training, is arguably stronger than in any other nation. 'The drive towards 'equality of productive capacity', supported by all the social partners, has been seen as an essential basis of social solidarity and competitiveness.' (Green & Sakamoto 1999).

**figure 8: labour productivity, 1996**




source: High Skills Project, London, Institute of Education 2000

Public expenditure on education in Germany at $1747 per capita is well above the nine-country mean and OECD-country mean. As indicated in table 5, Germany spends significantly more per student on upper secondary education and post-secondary non-tertiary education.

**table 5: expenditure per student ($US) on public and private institutions by level of education, 1997**

| | Germany | nine-country median* | OECD-country median |
|---|---|---|---|
| Early childhood | $4 288 | $3 603 (7) | $3 463 |
| Primary | 3 490 | 3 470 (7) | 3 851 |
| Lower secondary | 4 652 | 3 983 (5) | 4 791 |
| Upper secondary | 9 322 | 5 492 (5) | 5 790 |
| All secondary | 6 149 | 4 927 (7) | 5 274 |
| Post-secondary non-tertiary | 10 839 | 8 001 (2) | 5 337 |
| All tertiary | 9 466 | 9 390 (7) | 8 612 |

* Data for all countries is not available. Figures in brackets indicate how many countries for which data was available.
source: OECD Education Database, table B4.1

The social partnership is built upon a foundation of a high degree of trust in civil society (Fukuyama 1995) and training embedded in corporate institutions



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made up of complex forms of interest group relations. The society has a long history of respect for technical knowledge and the German concept of *beruf* (profession or occupation) has been institutionalised in the Dual System. As in Singapore, high wage levels institutionalised in regulations (if one ignores the 'guest' workers' wages) have been an inducement for employers to maximise skill levels and labour productivity.

The German form of neo-corporatism is in contrast to the statist traditions of France and the neo-liberalism of the UK. The strong centralised state of both the French and Thatcherite neo-liberal model is not a feature of Germany, where many functions have been transferred to the *Länder* (i.e. the states). The state has a more enabling than an interventionist role (Streeck 1997), and many of the regulatory functions are located with the *Länder* and the social partners. The social partners play the major role in economic policy determination and it was this model that attracted Australia's Hawke Labor Government when it came to office in 1983 and implemented a number of neo-corporatist measures, which arguably provided the stimulus to the national training reform agenda.

Markets, including labour markets, are highly regulated and segmented within a central framework. The labour market and the transition processes are dominated by occupational labour markets. The regulatory arrangements have been seen as inducements for employers to provide training. Apart from the influence of wage levels, through the social partnership arrangements, high standards are set for workforce qualifications and sectoral agreements can prevent poaching of skilled workers. This is reflected in job tenure which is relatively high in Germany.[21] Relative job security together with the regulated labour market encourages workers to upgrade their skills and qualifications.

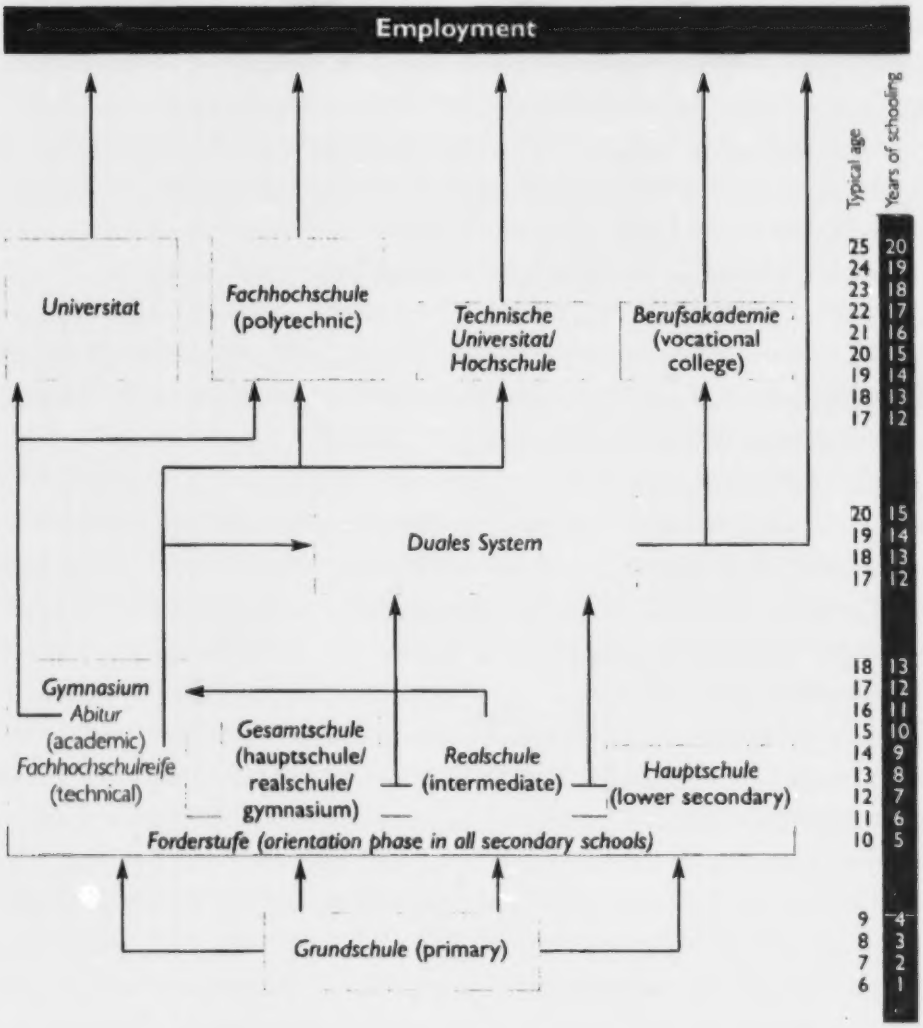
German companies also have relatively flat hierarchies (Maurice et al. 1989) and this encourages flexible work practices and multi-skilling. Finally, company law in Germany tends to encourage longer-term investment in training through measures to lessen the pressure for short-term returns and to discourage takeovers.

In the decade since reunification Germany's economic performance has stalled, as indicated by rising unemployment and declining economic growth. The cost of reunification and the impact of a European recession have contributed towards these problems. But questions are being asked about the overall structural health of the German economy. These questions are creating pressures on the social partnership upon which it is built, including its much studied and admired training system.

education system

The German secondary education system was based upon the original post-war design of the now superseded British system set down in the Butler Act of 1944. This was designed as a three-track system of academic (grammar), general (secondary modern) and vocational (technical) schools. Figure 9 shows an outline of the German education system.

**figure 9: the German education and training system**



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The definitional level of the German system is at the lower secondary (*Gesamtschule*) where the separation of students into different tracks takes place. Essentially the German system is a case of Raffe's (1993) binary education system, where students at the end of primary school choose academic or vocational streams. Approximately 30% of students are given entry to the academic gymnasiums to undertake the upper secondary *Abitur* and its vocational equivalent, the *Fachhochschulreife*. Most of these students proceed to higher education, with *Abitur* graduates mostly going to the universities and the *Fachhochschulreife* graduates proceeding to *Fachhochschule*. As indicated in figure 9, these institutes proceed to a very high level of technical education. All students who complete the *Abitur* are guaranteed entry to the free system of higher education (Curtain 2000). This has put considerable pressure upon higher education, especially with the fiscal burden of reunification. Most students entering the *Hauptschule* and the *Realschule* will enter the Dual System of apprenticeships.

In fact the education system is far more complex than this basic structure. Comprehensive schools also exist, although they are small in number and there are also technical and vocational gymnasiums. There is diversity in the patterns of schools across the *Länder* (states). The system is also more complex at the post-school levels with a wide variety of education and training institutions. Nevertheless, articulation between elements of the system is relatively formal with entry to institutions for the most part dependent upon the completion of feeder programs. There is meant to be some flexibility across the system, and it is possible for students in *Realschule* to enter higher education, for example. While the pressure for greater flexibility is growing, the majority of students follow standard pathways, and the separation of academic and vocational education in Germany is more complete than in most other countries.

Levels of participation in education and training are very high, and all young people are required to undertake some form of full- or part-time education and training until the age of 19. If the Dual System is regarded primarily as training, rather than an employment system, labour market entry in Germany is relatively late. In the higher education stream people can be in their late 20s before they enter full-time employment. A growing pathway is that of young people completing secondary education followed by an apprenticeship and then entry to higher education. In a highly credentials-oriented labour market (Northdurft 1989) this pathway is seen as very powerful. The standards of education in Germany are relatively high (OECD 2000) and this is seen as a platform for skills formation (Green & Steedman 1993).

As the archetypal binary system the German education system's relationship to skills formation has been subject to considerable debate. The desire of the British Government in the early 1980s to copy the Dual System in the form of the Youth Training Scheme has undoubtedly reinforced the maintenance of the elite academic route of the Advanced Grade (A-levels) within the school system. In a similar manner, Dougherty's (1987) argument that the Dual System is really a system of labour market allocation is consistent with the desire of some commentators in Australia (e.g. Penington 1993) to adopt the German bifurcated model. These debates indicate the inter-linking of the issues of secondary education, vocational training and transition from education to employment.

The overall level of qualifications of the German population is very high, as indicated in table 6. When consideration is taken of the strong orientation towards technical qualifications, the claims that the German workforce has the highest level of skills of all national workforces and that Germany is the archetype high skills economy seem justified.

**table 6: levels 3 to 6 qualifications of populations of selected countries, 1998**

| | Level 3 Upper secondary (%) | Level 4 Post-secondary non-tertiary education (%) | Level 5/6 Tertiary and above (%) | Level 3 and above (%) |
|---|---|---|---|---|
| Germany | 56.3 | 4.4 | 23.0 | 83.7 |
| UK | 57.3 | - | 23.6 | 80.9 |
| Japan | 49.5 | - | 30.4 | 79.9 |
| France | 40.0 | 0.2 | 20.6 | 60.8 |
| United States | 51.6 | - | 34.6 | 86.5 |
| OECD-country median | 41.9 | 2.0 | 21.8 | 65.7 |

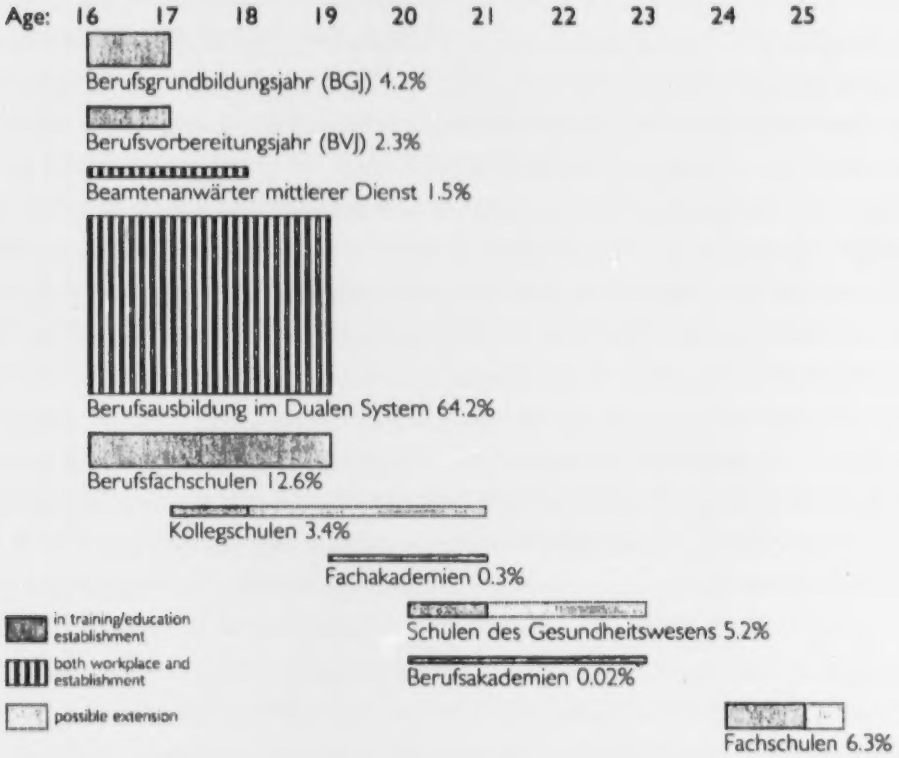
source: OECD Database, table A2.1a

## initial vocational training

Initial vocational training in Germany is provided through the system of technical schools (*Hauptschule*) and the famed Dual System. About 25% of students from primary schools enter the *Hauptschule*, but the curriculum is relatively broad. Most students from the *Hauptschule* and the *Realschule* enter the Dual System, with between 60 to 70% of young people having undertaken an apprenticeship over the last two decades.

As with the overall education system, IVT in Germany is more complex than the simple division between the Dual System and the associated technical institutions. Figure 10 indicates that there is a wide variety of institutions that complement and supplement the Dual System. These various institutions provide off-the-job training for the Dual System; alternative full-time training for those who cannot find an apprenticeship; specialist training (e.g. nursing); post-apprenticeship training and training at the tertiary levels, including postgraduate training. Some institutions are limited to certain *Länder*.

**figure 10: initial vocational education and training programs (1995/96)—percentage of cohort**




source: EC 1999

Despite this diversity, the size and comprehensiveness of the German apprenticeship system is unmatched by any other country. With the exception of Denmark, no other country approaches its level of participation and the level of industry investment is very high. The system is built upon an elaborate system of

social partnership, distributed social control, and ordinances and regulations established by the centralised and tripartite Bundesinstitüt für Berufsbildung (BIBB). It typically involves three and a half years of contracted training in an enterprise under the supervision of a *Meister*, plus two days per week in the *Berufsfachschulen* studying general and theoretical subjects. Typically, and in contrast to New Apprenticeships in Australia, the system is highly regulated. An enterprise cannot take on apprentices without a qualified *Meister*, which is a prestigious position that requires both technical and instructional qualifications. The range of occupational categories for the apprenticeships is very large, but there has been a trend towards the consolidation of these categories and a movement towards industrial rather than craft categories.

The completion rates for the Dual System are very high (typically 90% and over) and the size and degree of social and industrial investment in it have clearly contributed towards the relatively low levels of youth unemployment, although this effect may be diminishing (Muller et al. 1998).[22] It has been regarded as providing an unmatched and high standard of occupational skills, with over 65% of the German workforce having occupational qualifications. Standards are set by the BIBB and the Chambers of Commerce, and works councils at the enterprise level supervise the processes at the local and industry levels. The percentage of workers who immediately remain in both the industry (circa 70%) and the enterprise (circa 60%) when they complete their training is relatively high, although these figures are falling (Putz 1994).

The system rests upon the willingness of employers to provide apprenticeship placements and the willingness of young people to complete.[23] Employer willingness is frequently attributed to the relatively low level of wages for apprentices in Germany, as indicated in table 7. But the social partnership culture and arrangements also play a part. They have helped to promote company loyalty and thus reduce the threat of poaching. Sectoral collective agreements have also led to high standards for workforce qualifications. This has provided an incentive for employers to train staff and for young people to complete their training. They also act as an incentive for continuing training, and 20% of apprentices upgrade their training to become *Meisters* (Green & Sakamoto 2000).

The Dual System has been beset by periodic crises, mostly in the form of a shortage of places in industry.[25] In these circumstances an approach equivalent to 'out of trade apprentices' in Australia is implemented with young people undertaking full-time training in *Berufsfachschulen*. In East Germany, approximately 25% of all apprentices were 'out of trade' in 1995 (CEDEFOP

Dossier 0/95). Some young people also undertake full-time technical studies, post-16 years of age. Those who enter the workforce outside the Dual System are required to undertake part-time study until the age of 19.

**table 7: apprenticeships: European comparisons, 1980–1993**

| | Apprenticeship numbers | | | Apprenticeship wages |
|---|---|---|---|---|
| *Country* | *1980* | *1992* | *1993: Percentage of young people* | |
| Germany | 1 712 728 | 1 388 322 | 66% | From 18 to 32% of awards<br>Average of 27% (1993)[24] |
| France | 228 800 | 206 000 | 10% | From 25% (1st year/16–17 years) |
| to | | | | 78% (3rd year, 21+ years) (1994) |
| UK | 262 000 (1983) | 245 000 (1993) | Target: 12% of 16–17-year-olds | Negotiated with employer; no minimum rates (1994) |

source: CEDEFOP 1995

The Dual System itself has been subject to frequent changes over the past 100 years. Current pressures are enormous. Reunification has brought high costs and low levels of placements in East Germany and has contributed to a serious recession. Other pressures from global economic changes are placing stress upon the social contract in Germany that has underpinned its industrial structure and unique approach to skills formation.

## continuing vocational training

The location of the bulk of IVT within the workplace and the elaborate structure of technical education and training in Germany makes the continuing vocational training system (CVT) an extension of the IVT system. A large percentage of workers who have completed IVT undertake further training at some later stage. This is facilitated by cultural expectations and regulations. Movement into certain categories of employment requires qualifications established through sectoral agreements, many of which are reinforced through regulation.

Employers are also required to invest in their own training, both to acquire apprentices and to establish their own businesses, many of which require the *Meister* certificate. For example, a self-employed craftsman must by law hold the *Meister* certificate (HMI 1992). This is a higher qualification than an apprenticeship certificate in either Germany or Australia and thus requires further training. Because of the occupational structure of the German labour market, CVT

is most often associated with a recognised qualification and therefore tends to be at least partially located in training institutions.

There has been a considerable increase in participation in further education and training in the German workforce. Employers are more likely to support CVT for workers who are considered more likely to remain with the firm (Schomann 1998). There is a clear relationship, therefore between CVT and labour stability, and CVT in German firms is closely related to future prospects within the enterprise. On the other hand, this relationship is also conducive to the development of internal labour markets that may challenge the occupationally segmented structure of the German labour market. There is also evidence that it increases inequality (especially for women) and that it acts as a disincentive for segments of workers (older and less qualified) to undertake CVT. On the other hand, there is evidence that the strong educational base of German workers and the Dual System provide a strong platform for CVT in German industry.

## issues

The German economy has been under continuous pressure for a decade. One impact of this has been pressure upon the Dual System with a shortage of places and some growing criticism from the business sector. Complaints have included the costs of wages, which rose in the early 1990s, the increased time off the job and associated increases in costs. Changes in industry structures are leading smaller firms to take on fewer apprentices; another factor is the inability of the new (east) *Länder* to provide apprenticeship places. In one of these *Länder* (Brandenburg), only 30% of youth have a proper apprenticeship place and only 28% of firms are recruiting apprentices (Green & Sakamoto 2000).[28]

A fall in the size of the age cohort population has partially compensated for the fall in places, but demand has also increased from students completing the academic stream. An increasing number of students are completing both an apprenticeship and tertiary studies, as this route is seen as providing a strong employment guarantee. By 1999, the number of school leavers seeking an apprenticeship placement had again risen to 655 000 (CEDEFOP Dossier 1/99).

The German Government has intervened by funding training places, including places in private skills training centres. Attempts are being made to expand the industry coverage of training places and the BIBB is very active in its dialogue with the social partners to encourage the reform of the Dual System. The Social Democratic party, prior to coming to office, proposed the implementation

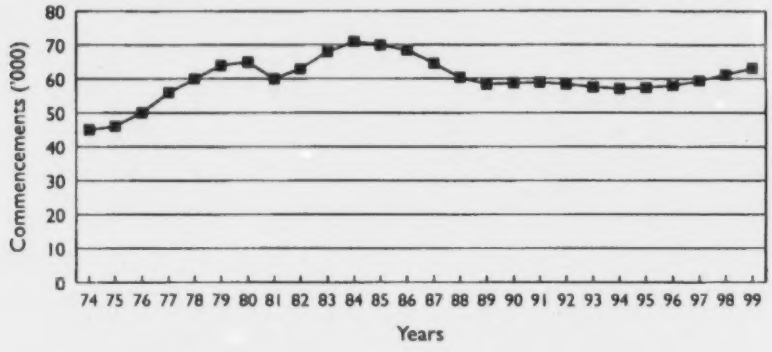
of a training levy (CEDEFOP Dossier 3/97) but has now dropped this plan (Green & Sakamoto 2000). The Government has indicated it will give contractual preference to enterprises that offer apprenticeship places and state departments and agencies have created over 150 000 places. These responses are in keeping with the social partnership model and stand in contrast to the actions of the British Government in the 1980s and the Australian Government in the 1990s where the regulatory and interventionist role of the state has been limited. The BIBB has proposed an 'early diagnosis' system for future qualifications requirements (CEDEFOP Dossier 3/98) that contrasts with the market approach in Britain and Australia where governments have been suspicious of labour market planning.

There have been repeated calls for the system to become more flexible and there has been a range of innovations. Dual qualifications have been developed in some *Länder*. The changing nature of skills formation has also placed pressures on the occupational nature of the apprenticeship system, including a very strong sense of occupational identity within German culture. Responses have included the development of new training profiles, strengthening standards, the upgrading of the content of apprenticeships and the introduction of more broadly described training qualifications as 'business cards', similar to the mooted 'skills passports' in Australia. The articulation of the Dual System with higher level courses has also been supported (CEDEFOP Dossier 1/97; 2/97).

The regulatory system for the Dual System is subject to constant adjustments.[27] Nevertheless, with employers tensions remain, calling for change to a system that is seen as 'too costly, too lengthy, not efficient enough' (CEDEFOP Dossier 2/96). The unions, on the other hand, have expressed their suspicion that standards will be eroded and have called for a stronger link between vocational and general education and training (CEDEFOP Dossier 1/96), and a movement towards more general classifications within a broad overhaul of the system (CEDEFOP Dossier 1/99). A proposal by the Ministry of Education to reduce training courses to two years received different responses from employers and unions (BIBB 2/98). Nevertheless, the social partners by Australian standards remain remarkably united in their commitment to the training system (BIBB 2/98)

VET, and in particular the Dual System in Germany, faced a crisis in the mid-1980s. Figure 11 shows that its ability to provide sufficient places was falling and its capacity to meet the skills needs of a changing economy was in question (Casey 1992). By the end of the decade, however, it had pulled through. Whether it can again reinvent itself under a new set of circumstances and help to sustain the social partnership upon which it is built remains to be seen.

**figure 11: apprenticeship commencements, 1974–1999**




source: Casey 1992

The German economy is facing other pressures that may impact upon the training system. The cost of reunification has been very great and is placing severe burdens upon government finances, including the financing of training. Despite the heavy industry investment in training, state expenditure on CVT is significant. The crisis of youth unemployment and the coalition commitment to a program of action (CEDEFOP Dossier 2/99) are increasing the state costs of IVT.

Wages costs in Germany are high, and this may lead to competitive pressures within the European market and beyond. A deregulation of wage structures would undermine the Dual System. As well, globalisation is leading to greater competitive pressure on traditional high skills and high quality export industries.

There is evidence of responses from enterprises, including the location of plants abroad, mergers with foreign companies (as in the automobile industry) and efforts to reduce costs through lean production methods (Streeck 1996). There appears to be some threat to sectoral agreements and the social partnership upon which they are based. This could be further undermined by a greater emphasis upon international finance and the associated pressures for short-term profits. There is likely to be continued pressure for greater flexibility and local solutions to problems including enterprise rather than sectorally based agreements. These changes could threaten the high wages–high skills model of producer capitalism. The discourse between the state and the social partners in Germany indicates an awareness of these dilemmas and the outcome will be of interest for a much-admired model of skills formation and social partnership.

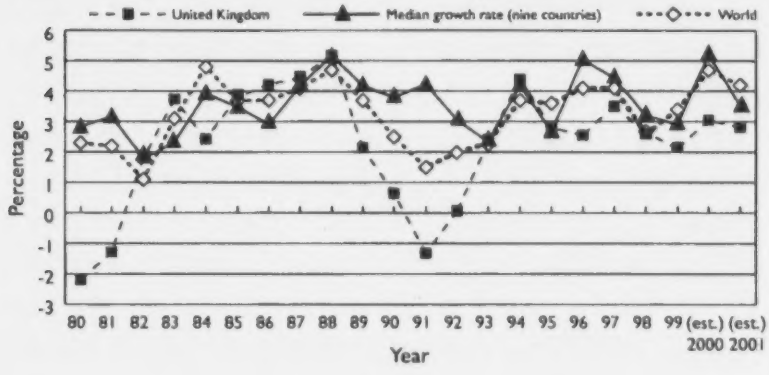
# United Kingdom

## the economy

The United Kingdom (UK) is a union of the four 'nations' of England, Scotland, Wales and Northern Ireland. Its economy went through a long period of economic stagnation after the Second World War. It witnessed the relatively stronger growth of most of its European neighbours. Growth slowed during the 1990s to an average annual increase of 2.2% between 1990 and 1999 compared to an average of 3.2% between 1980 and 1990. In 1999, average annual growth of 2.1% was below the nine-country median of 2.7%.

As the world's first industrial nation, its manufacturing industry had become inefficient and uncompetitive. Radical policy changes introduced by the Thatcher Government in the 1980s resulted in a dramatic decline in manufacturing employment. Today the United Kingdom has a relatively high concentration of employment in the service sector, accounting for 59% of the male labour force and 86% of the female labour force during the period 1992 to 1997.

**figure 12: GDP growth rates 1980–2001**




source: IMF, World Economic Outlook Database 2000

Levels of unemployment and youth unemployment, although relatively high, are below the nine-country mean and OECD mean. In the late 1990s, unemployment fell from 7.1% (1994–1997) to 6.6% and youth unemployment fell from 15.5% (1994–1997) to 13.5%. Despite this, commentators continue to argue that the United Kingdom's underlying skills base is poor.



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Green and Sakamoto (2000), for example, argue that the United Kingdom has a strong output of university graduates, a strong base in science and information technology and commercial skills. But there are substantial weaknesses in the transfer of science to innovation, low levels of intermediate skills, a high proportion of the workforce with low skills, and a low base of social capital.

VET, and in particular industrial training, have attracted a considerable amount of internal criticism in the UK. The National Institute for Economic and Social Research undertook a large number of comparative studies in the 1980s and 1990s that indicated that the levels of skills formation in various industry areas in the United Kingdom were consistently below those of other advanced economies (e.g. Prais 1987). Industry has been afflicted by reluctance to train due to the suspicion of skills poaching. Finegold (1990) has described the English economy as being caught in a low skills equilibrium of low wages, low productivity and low levels of training.

**table 8: economic and education indicators**

| | United Kingdom | nine-country median |
|---|---|---|
| Population (1999)[1] | 59.1 m | - |
| GDP per capita ($US) (1999)[2] | $24 715 | $24 715 |
| GDP annual growth rate (1990–99)[1] | 2.2% | 2.7% |
| Unemployment rate (1994–97)[3] | 7.1% | 4.9% |
| Youth unemployment rate 15–19 years (1998)[4] | 15.5% | 15.2% |
| Average annual labour force growth rate (1990–99)[1] | 0.3% | 1.2% |
| Public expenditure on education as a % of GNP (1997)[1] | 5.3% | 4.8% |
| Net enrolment ratio – secondary education (1997)[3] | 92.0% | 92.0% |
| School expectancy (1998)*[4] | 17.1 yrs | 16.6 yrs |

* All levels of education combined and education for children under the age of five is excluded.
sources: (1) World Development Report 2000/2001; (2) IMF World Economic Outlook Sept 2000; (3) World Development Indicators 2000; (4) OECD Database

This apparent poor performance has been attributed to a cultural aversion to technical and practical learning (Weiner 1981) and to the liberal traditions of the British state and its laissez-faire approach to economic management (Green 1990). A tradition of voluntarism has permeated British education and training (with the partial exception of Scotland) and has continued within the area of industrial training (Senker 1992). Green and Steedman (1993) attributed Britain's poor

industrial skills base to the relatively poor performances of its school system and its failure to provide a sound general platform for skills development. Public expenditure on education in the United Kingdom accounted for 11% of total public expenditure in 1997, compared to an OECD-country mean of 13%. As indicated in table 9 below, the United Kingdom spends less per student on primary, secondary and tertiary education.

**table 9: expenditure per student ($US) on public and private institutions by level of education, 1997**

| | United Kingdom | nine-country median* | OECD-country median |
|---|---|---|---|
| Early childhood | $5312 | $3603 (7) | $3463 |
| Primary | 3206 | 3470 (7) | 3851 |
| All secondary | 4609 | 4927 (7) | 5274 |
| All tertiary | 8169 | 9390 (7) | 8612 |

* Data for all countries is not available. Figures in brackets indicate how many countries for which data was available.
source: OECD Education Database, table B4.1

It has also been argued that state intervention in industrial training has been inconsistent and frequently unhelpful. The intense debate over VET in the United Kingdom has been related to Britain's relatively poor post-war economic performance and its consistent relative industrial decline since its status as the world's first industrial nation. Relative industrial decline and the early advent of youth unemployment led to a large number of programs in the 1970s that have given the impression of constant and relatively unsuccessful interventions. The major intervention to combat youth unemployment, the Youth Training Programs (later Youth Training) was introduced in the 1970s and was apparently modelled on the German Dual System. While the program has persisted, it appears to have had poor outcomes with completion rates of only 38% by 1991–92 (Finn 1993).

Industry training in the United Kingdom has been built upon the industrial apprentice system, similar to the Australian system. As in Australia, this system has been under constant pressure through the combined factors of a declining manufacturing sector, declining youth labour market and the breakdown of regulatory frameworks. During the 1980s, the period when entry-level training in Australia was being propped up through the corporatist approach of the Prices and Incomes Accord and other interventionist strategies of subsidies and the introduction of traineeships following the Kirby report, British apprenticeships

were facing the shock of the industrial policies of the Thatcher Government. Policies of labour market deregulation, an explicit rejection of corporatism and preference for investment in the financial sector contributed to a rapid decline in manufacturing employment and an even more rapid decline in apprenticeship training (Gospel 1995). The government did not favour the apprenticeship system itself as it was seen as too inflexible and regulated. Since that period, the subsequent Major and Blair Governments have attempted to reinvest in apprenticeship training with the establishment of Modern Apprenticeships.

In the schools area, the Labour Government in the late 1970s took the view that the apparent indifference of the education sector to economic and employment outcomes needed to be challenged. This has been a theme of all subsequent UK governments and has strongly influenced policy over the past two decades. Attempts to introduce vocationalism into secondary education have included the *Technical and Vocational Education Initiative* (TVEI), a variety of business–education links initiatives, *core skills* (now key skills) and traineeships. The majority of the senior secondary cohort has now moved into the further education sector (broadly equivalent to TAFE) and governments have made a major investment in the broadly vocational *General National Vocational Qualifications* (GNVQs).

The approach has been different in Scotland. But here the early use of VET modules (accredited by the VET authority—the Scottish Vocational Education Council—SCOTVEC) by secondary schools attracted a considerable amount of international attention in the early 1990s. In the late 1990s the schools and VET accreditation authorities in Scotland, England and Wales have been merged. This has informed the policy of the Victorian Government and has been the subject of considerable interest from other state governments in Australia.

## the education system

Recent constitutional changes have led to some devolution of governmental functions to assemblies in the nations of Wales and Scotland and haltingly to Northern Ireland. The numerical strength of England within the union has not required an English assembly. In the areas of education and training, England and Wales have been administered as a single entity, but Northern Ireland has maintained a degree of independence in curriculum. Scotland, on the other hand, has always maintained a distinctive education system that historically has attracted a great deal of international interest, in particular from the Australian states and New Zealand. In the area of training, a more common national approach has been

taken. But even in this area, Scotland has taken a distinctive approach that has attracted international interest.

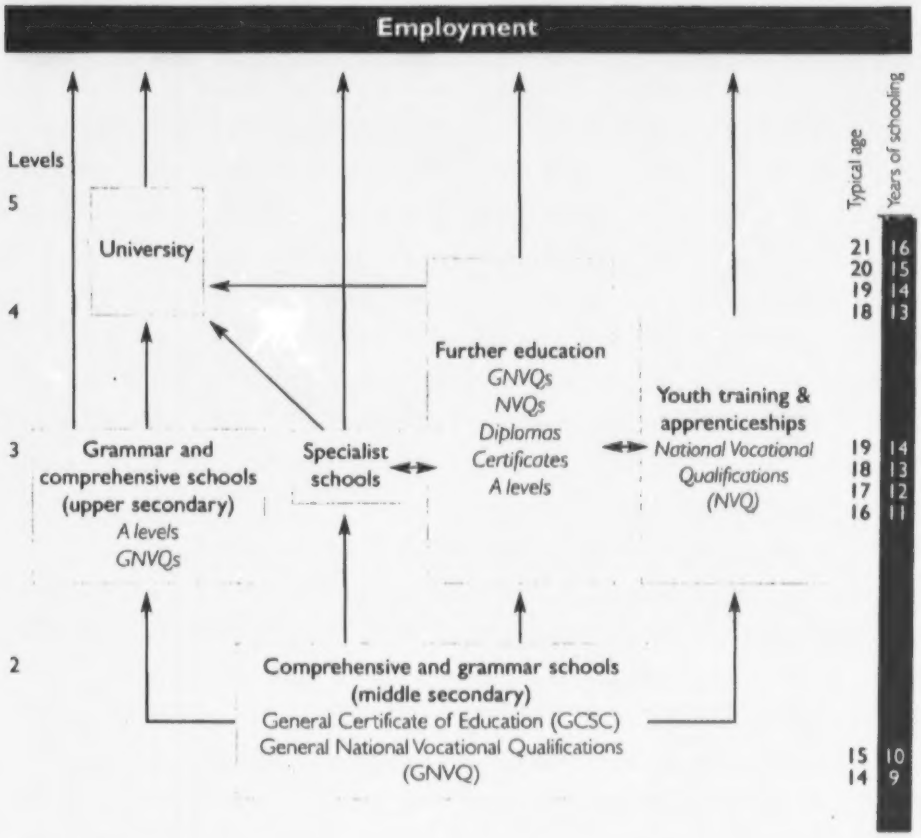
The English and Scottish education systems are different. The 1944 Education Act laid down the foundation for the English system based upon the 11+ examination. Primary exit students were divided into the academic stream attending grammar schools where they eventually took the advanced level (A-level) certificates, and those who entered secondary modern schools and tended to leave school at an earlier age. The bifurcated system was mostly abolished during the 1970s under 'comprehensive reorganisation'. Attempts to revive the grammar schools have been only partially successful.

The historical debate over the bifurcated system has been overtaken by the pressures to increase 'staying on' rates and the 'vocationalisation' agenda. This latter pressure has also included the perceived need to revive entry-level training and, as in Australia, it has been belatedly recognised that the school system needs to play a role in this. What has emerged is known as the tripartite system of academic (A-levels), general vocational (General National Vocational Qualifications—GNVQs) and vocational qualifications (National Vocational Qualifications—NVQs), or what Raffe (1990) has called the 'mixed model'.

A key to this model has been the resistance of the A-levels to change, which despite a series of reports, has remained substantially unchanged as an elite route to university education. The survival of the A-levels has provided one of the counterpoints for a 20 year debate over education and training after the age of 16 in England. The alternative ideal has been that of a unified system, which a broad range of educational interests has championed. These have included government-sponsored reports (e.g. Higginson 1988), awards bodies (Crombie White et al. 1995) and independent educational bodies (e.g. National Commission on Education 1993). These twin and conflicting pressures of the strength of the A-levels and desire for a unified post-16 system have led to the current education and training framework within which VET is set in the United Kingdom.

The basic structure of the British (English) education system is indicated below. It has two characteristics: a provider structure and a qualifications structure.

**figure 13: the English and Welsh education system**




providers

In England and Wales at the middle secondary level, students will generally take the General Certificate of Secondary Education at a secondary school. At this level General National Vocational Qualifications (GNVQs) are being introduced. Some students will also enter the Youth Training or Modern Apprenticeships that deliver the National Vocational Qualifications. At the upper secondary level students can enter a variety of institutions. Some (now a minority) stay at secondary schools (comprehensive and grammar) and others will enter the variety of institutions within the further education (FE) sector. These include the mainstream FE colleges, city and technology colleges, university colleges, and sixth form colleges. New varieties of senior secondary institutions are being planned. All of these institutions provide both the A-levels and the GNVQs. The FE colleges also



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provide the NVQs and are the main off-the-job providers for Youth Training and apprenticeships. Students holding A-levels of the GNVQs can enter university. There has been a very rapid increase in the number of students entering university with the GNVQs and all universities except Oxbridge (Oxford and Cambridge) and one other accept these qualifications.

## qualifications

It is the qualifications structure that gives the English system its distinctive 'tripartite' structure: the A-levels, the GNVQs and the NVQs. These qualifications are arranged in levels that supposedly give equivalence. This equivalence is established through a *National Qualifications Framework*, which like the Australian Qualifications Framework, is descriptor-based. As is generally the case, however, the academic qualification (the A-levels) is regarded as superior (DfEE 1997). The descriptors, as in Australia, are more useful for guiding the levels of the GNVQ and NVQ models. A recent review of education and training for 16 to 19-year-olds (Dearing 1996) recommended measures towards a stronger common framework. But the system is still criticised as being 'strongly tracked' (Young & Leney 1997).

Recently the British government collapsed the qualification authorities for education and training into single authorities in England and Scotland. This appears to have informed developments in some Australian states, notably Victoria and Queensland. There are separate 'awards' bodies that operate within the single qualifications framework. In England and Wales there are three major bodies (City & Guilds, Royal Society of the Arts, and the Business and Technology Education Council). Some of these, especially City & Guilds, operate internationally, and have a strong presence in many former British colonies. Administrative arrangements have also been collapsed into a single Department for Education and Employment (DfEE) that incorporates VET.

The clamour throughout the 1980s about the relatively poor levels of participation in education and training in Britain resulted in a succession of innovations. Most of these innovations have only marginally affected the A-levels. There has been much greater innovation within the vocational and hybrid elements of the tripartite system. The innovations include changes to curriculum and qualifications, funding arrangements and provider diversity. Britain provides for a rich study of the role of the state within VET in the context of a strong market ideology. While distinctive market mechanisms have been implemented, notably

experiments with vouchers, provider diversity and autonomy, and strong industry leadership, the state has attempted a wide variety of administrative reforms and has endorsed the setting of attainment and participation targets in education and training.[28]

## competencies

The NVQs, the vocational qualifications, are designed as a single set of qualifications for apprenticeship training, in company training and industry training within FE or VET providers. The aim has been for the three main awards bodies, as well as the large number of small awards bodies, to adapt their qualifications to the NVQs. As with the GNVQs, the NVQs are competency-based, and have attracted the same types of debates over the conceptual and structural frameworks for the competencies, modules and qualifications.

Competency or occupational standards are developed by industry lead bodies, now replaced by 70 *national training organisations*, and are then developed into modules by the awards bodies under the guidance of and the framework set down by the qualifications authority. There are eleven NVQ areas, one of which is 'Developing and extending knowledge and skills'. This is similar to the original system in Australia where the standards were developed through the National Training Board and then used to develop modules accredited by state training recognition authorities.

There are conceptual and structural differences between NVQs and units of competency in Australia. The NVQs are more structured with underpinning knowledge being set down as courseware. As in Australia, the assessment of outcomes is seen as pivotal. NVQs are more specifically industry oriented in the United Kingdom as the GNVQs occupy much of the more generalist VET territory occupied by the common framework of training packages in Australia. To some extent, therefore, there has been a different type of debate about underpinning knowledge. It has a greater emphasis upon underpinning skills, rather than cultural knowledge.

In England, awards bodies have been free to remain outside of the framework, and this has happened with some of their qualifications. In England and Wales the original authority was the National Council for Vocational Qualifications, but this has recently been amalgamated with the schools authority to form the National Qualifications Authority.

Outside of the A-levels, British education and training has invested heavily in modular approaches. Even upper secondary education in Scotland is modular, allowing for the integration of academic and vocational. This has facilitated an alternative to the English tripartite approach, so that the equivalent of the GNVQs can effectively be integrated into the common framework. It is an approach that could have lessons for Australia where VET in schools is leading to pressures for a bifurcated approach.

As indicated above, arrangements in Scotland are substantially different. The unified and modular-based upper secondary education system that incorporates vocational modules effectively brings together the academic and general vocational streams. A Scottish National Vocational Qualification has been developed, but is rarely used. Vocational qualifications are in the form of the Scottish Vocational Qualifications (SVQs). These are similar to the NVQs. Scottish authorities protest the need for these differences, but there must be a suspicion that this relates to nationalism rather than the distinctive characteristics of Scottish industry. There is some interchange of qualifications across the border. Its qualifications body (the Scottish Qualifications Authority) is also the single awards body.

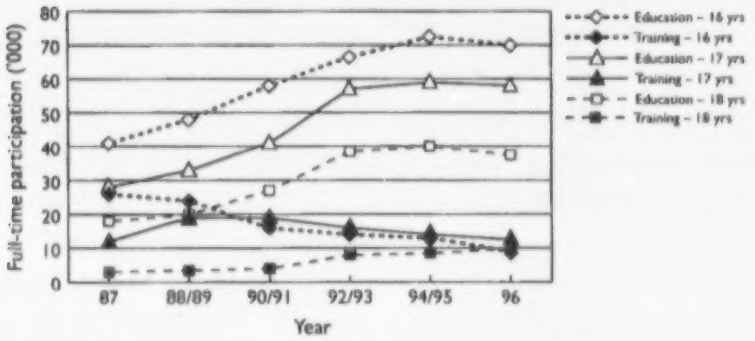
## initial vocational training

While some official publications (e.g. CEDEFOP 1999) classify the hybrid GNVQs as 'vocational', this must be regarded as dubious. Most level 2 GNVQ graduates continue into higher and further education and few enter the vocational training stream (NVQs). The GNVQs include 'key skills', similar to the key competencies, but these are discrete rather than embedded modules.[28] Despite their vocational orientation, it is difficult to regard them as initial vocational training. They have been criticised by a number of commentators for their academic orientation. For example, Hodkinson and Mattinson (1994) have argued that the GNVQs in seeking status equivalence have moved too close to the A-levels and away from the NVQs, thus exacerbating the traditional disdain for industry training.

As indicated in figure 14, overall levels of participation in full-time training amongst 16 to 18-year-olds in the UK is comparatively low, and compares poorly with many European countries. As overall levels of participation in full-time education have increased, levels of participation in full-time training amongst 16 and 17-year-olds has fallen. This has been partially compensated by an increase amongst 18-year-olds. By 1998, only 7% of school leavers entered government-

supported training, compared with 79% entering full-time education, and 14% entering employment (DfEE 2000). These figures, however, are misleading, as a majority of students (in England and Wales) undertake the equivalent of senior secondary education in the FE sector. Thus comparisons with Australia are difficult to draw, as many students in full-time FE education would be equivalent to TAFE students in Australia.

**figure 14: full-time participation in government-sponsored education and training, ages 16–18, 1987–96**




source: OECD 1998

The fall in participation corresponds to a fall in Youth Training, and recent governments have attempted to invest more heavily in a revival of apprenticeships, Modern Apprenticeships, with only moderate results. This is reflected in figure 15 showing that the participation of 16 to 19-year-olds in work-based training fell during the 1990s. As in Australia, this was largely precipitated by a recession in 1990, but continued apace during the mid-1990s. As in Australia, entry-level training commencements have proven very sensitive to the economic cycles. This compares with European countries that either buttress their apprenticeship systems with stronger institutional and regulatory frameworks (Germany) or have located their apprenticeships mainly in senior secondary education (Denmark and Sweden: CEDEFOP Dossier 2000/3). These 'systems' have proven less sensitive to the economic cycles.

Students undertaking GNVQs, and even some NVQs, at schools and FE colleges are unlikely to undertake work placements, as in Australia, or forms of alternance, as in France. As a consequence the orientation of the GNVQs towards industry training is even weaker. The industrial training role of Youth Training has also been questioned.



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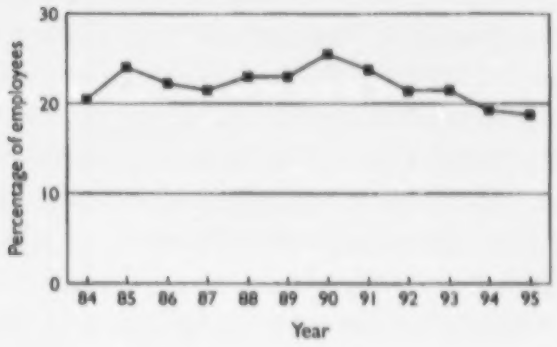
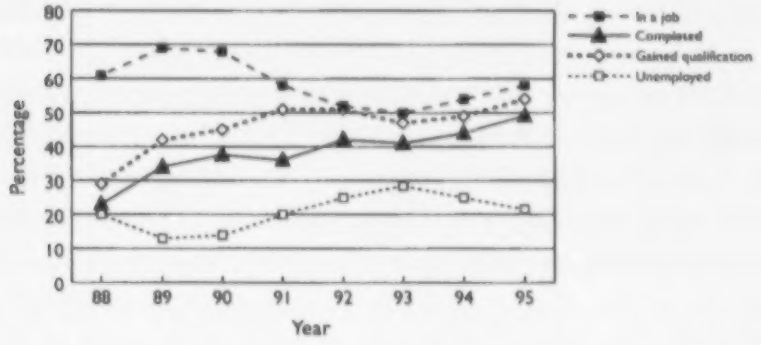
**figure 15: trainees (16–19-year-olds) receiving work-based training, 1984–95**




source: Spours 1996

**figure 16: youth training destinations, 1988–95**



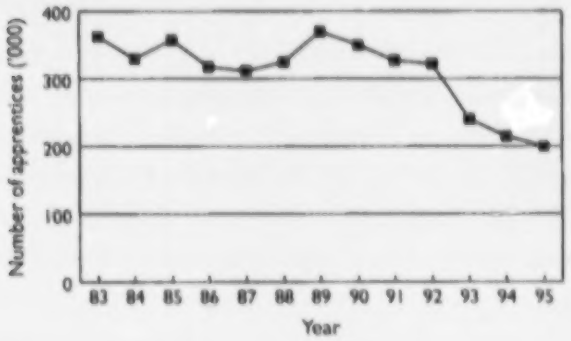

source: OECD 1998

To an extent, Youth Training has been a response to youth unemployment, rather than an industry training program. The rate of completion has never been high, although this has picked up in recent years, possibly due to the stronger linkages with subsequent education and training programs, including Modern Apprenticeships. Marsden (1997) has argued that in the 1980s the Government was happy to allow the apprenticeship system to decay and tried to cure two ills, the inadequacy of the training system and youth unemployment, with the same instrument. As a consequence, the training system and especially youth training, became badly discredited in the eyes of employers and the young people leaving it were stigmatised.

## apprenticeships

Apprenticeships have provided the traditional foundation of industrial intermediate skills for British industry. The decline in apprenticeships is indicated in figure 17. Although the number of young people in Youth Training during the early 1990s was quite large, it is doubtful if this program has contributed much to industry skilling in Britain.

**figure 17: number of apprentices in the working population, 1983–95**




source: DfEE 2000

In the mid-1990s, the British Government realised the limitations of the former approach of allowing the apprenticeship system to decay, along with the industrial cities of the Midlands. It attempted a revival with the establishment of Modern Apprenticeships in 1994. One reason for this, as in Australia, was the belated realisation that industry and its leadership were quite attached to the apprenticeship tradition, as compared to traineeships (Youth Training).

Modern Apprenticeships are targetted at 16 to 24-year-olds as a work-based route. They provide NVQ level 3 or above qualifications in intermediate craft, supervisory and technical skills. The training framework is developed through a national training organisation for the relevant industry sector. As with New Apprenticeships in Australia, Modern Apprenticeships attempt more flexible agreements with employers, greater choice of training providers and more 'flexible' wage structures. Official documentation notes that apprentices will generally be paid a wage (DfEE 2000).

There does seem to be some evidence that the Modern Apprenticeships are relatively successful. Participation has now reached 200 000 (DfEE 2000), and there is evidence that smaller employers are willing to take on apprentices (DfEE

1998). The apprentices also appear to be satisfied with the program. Most expect to continue with their employers, and most expect to undertake further study, an outcome consistent with the British Government emphasis upon lifelong learning (Coleman & Williams 1998). Most entrants have completed GCSE, and some have transferred from A-levels. There is some concern that the traditional role of apprenticeships as the main employment route for 'working class' males is being diluted and that entry to Modern Apprenticeships is more difficult for students with poor academic backgrounds, women and minority groups (Unwin & Wellington 1995).

In 1997 the Government also introduced National Traineeships. These also provide a work-based route for 16 to 18-year-olds, but are of shorter duration than the Modern Apprenticeships and lead to level 2 qualifications. They can articulate with Modern Apprenticeships. By December 1998 there were 30 000 trainees (Everett et al. 1999). The Government also plans to implement Graduate Apprentices by 2002. These will consist of structured work-based learning for graduates.

The Government has established a program for unemployed 18 to 24-year-olds called the New Deal. It provides four options, one of which is full-time education or training. It has some similarities to the Work for the Dole scheme in Australia.[30]

## continuing vocational training

It is in the area of CVT that Britain has provided its most interesting contribution to international literature and debate. The combination of poor economic performance, especially in manufacturing industries, historical philosophies of liberalism and a radical conservative government led to a series of radical government interventions.

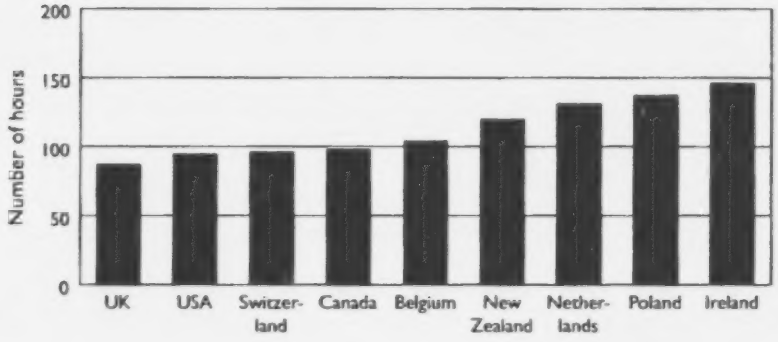
In essence, the Thatcher Government during the 1980s dismantled the semi-corporatist structure for industry training in Britain. This included deregulation of the labour markets and the associated training provision. The institutions, such as training boards that had been established to co-ordinate employers' training efforts, were abolished. These training boards had the capacity to set training levies for enterprises within their sectors. This capacity was also abolished.

In place of these arrangements the Government attempted to establish a more industry-led and market-based approach. Industry leadership has been through a range of industry bodies, and the Confederation of British Industries

(CBI) has had considerable influence over British training, and to a lesser extent education policy. During the 1990s, the CBI effectively set the national targets for education and training.

Over the past few decades, commentators have lamented the apparent unwillingness of British enterprises to invest in training (e.g. Evans 1989) and questioned the level of industry spending. The fear of poaching, the financial structure of British industries that requires short-term profits and the tendency to prefer low technology production have been placed alongside the cultural arguments and the said weaknesses of the British education system as the causes of this low investment. The International Adult Literacy Survey conducted by the OECD and Statistics Canada found that from nine countries, the United Kingdom recorded the lowest mean number of hours of participation in continuing education and training by 25 to 64-year-olds in 1994–95.

**figure 18: mean number of hours per year per participant (25–64 years) in continuing education and training, 1994–95**




source: OECD and Statistics Canada/International Adult Literacy Survey 2000

The Government has initiated *Investors in People* which establishes standards for business improvement and training. In 1999, 22% of enterprises with 50 or more employees and 38% with 200 or more employees were involved in the program. In 1998, 82% of employers provided off-the-job training, and 28.6% of employees received training over a three month period (DfEE 1999a). These figures have increased over the past decade. The influences on the propensity to train are similar to those in Australia: full-time employment, older employees, higher level occupations, more qualified workers, larger companies, the public and service sectors.

Since the arrival of the Blair Government the adequacy of the industry-led and market approach has been questioned. Proposals for the reintroduction of training levies have been put forward, and there is a stronger movement towards a more unified approach. This is consistent with a hesitant approach towards industrial regulation, which has included the reintroduction of a national minimum wage. There is a clear policy of greater state intervention in CVT. Two recent initiatives are *Small Firm Training Loans*, and *Work Based Learning for Adults*, which replaced *Training for Work* in 1998 (Payne et al. 1999). This latter program is substantial with 120 000 starts in 1998 (CEDEFOP 1999a). The other approach is to link enterprise development with CVT. Examples of this approach are the *Investors in People*, the establishment of eight *Regional Development Agencies* and the *University of Industry*.

Britain's efforts to develop a more robust training market have attracted a considerable amount of interest. Education and training have been driven by a strong market ideology that has only partially moderated under the Blair Government.

This market approach, however, has been developed alongside strong elements of centralism. The former confusion and fragmentation of the 'voluntarist' approach has gradually been replaced by centralised frameworks. Formal CVT is provided by FE colleges and private providers within the NVQ and National Qualifications frameworks. The framework is informed by the national training organisations that have wide roles including a degree of supervision of apprenticeships.

The financing of training has attracted considerable interest. This has been through three means. The Further Education Funding Council (FEFC) has funded FE and other providers through outcomes-based formula. While this has been controversial it has emphasised a market approach with initial and continuing VET.[31] Secondly, about 80 employer-led training and education councils (TECs) were established to promote training within industry. They have been provided with government funds for training that can be delivered in enterprises, FE colleges or private training organisations. Thirdly, *training credits* were introduced in the mid-1990s.

The training credits are vouchers that can be redeemed with an approved training organisation, including enterprise-based training. They have been available for school leavers, plus people re-entering the workforce or changing employment, such as discharged military personnel. The training credits have had

mixed outcomes. The major problem has been that they appear to be expensive as they operate on average rather than marginal costs.

Recently the Government's White Paper 'Learning to Succeed' (DfEE 1999) has announced a 'new framework for post-16 learning' will be developed. This will include a Learning and Skills Council 'responsible for the strategic development, planning, funding, management and quality assurance of post-16 education and training' (CEDEFOP Dossier 3/1999). The TECs will be replaced by about 50 local learning and skills councils, and the Further Education Funding Council will be abolished. Funding will be based upon a formula that will be in part needs-based.

The British Government has emphasised lifelong learning through the appointment of a special minister and a range of programs to assist in this quest. This includes the establishment of a University for Industry. This is a very ambitious program with targets of over a million people using training and learning packages by 2004.

## directions and issues

The British case is a rich source of comparisons for VET in Australia. There is a number of significant aspects: the implementation of competency-based training and assessment, the approach to a training market, attempts to induce a training culture, approaches towards training for unemployed youths and adults, and attempts to come to grips with the nature of employment, work and learning in the future. The British education and training policy scene is extremely dynamic. It is located in a government context where the relationship between the state and civil society is being redefined. This makes for fascinating observation, where the relationship has been based upon a strong liberal and laissez-faire tradition, but since World War II has been successively redefined through the welfare state, nationalisation, and the neo-liberal and market centralism of the Thatcher years. The Blair Government is looking towards new types of partnership that contain some elements of the 'mutual obligation' favoured by the Australian conservative Government.

Overlaying these aspects are continuing questions about the overall performance of the British training system. Hillage et al. (1998) discovered that few employers provide for long-term development of their recruits, and there is little evidence of recording and accreditation of training. These questions are raised by both independent commentary (e.g. Green & Sakamoto 2000) and

government publications (e.g. DfEE 1999a). Green and Sakamoto argue that current approaches are essentially supply-driven (in the context of the persistence of the voluntarist tradition (Barrett & Dewson 1998)) with a belief in the benefits of a flexible labour market and wage competitiveness.[12] They also argue that there is an absence of industrial policy that their research indicates is a key to the development of a high skills economy; an absence of strong measures to encourage enterprise-based training; a lack of coherence in approaches to policy on skills upgrading; and a perseverance of the culture of short-termism.

As others have pointed out (e.g. McKenzie 2000), it is important for the comparative study to take a long view and not judge the success of VET systems upon the basis of their location within the trade cycles. Comparisons of our three European countries in 1990 and 2000 would produce very different conclusions. Commentators remain skeptical about the underlying skills base of the British economy.

# East Asia

The role of TVET in the East Asian economies over the past two decades has attracted an increasing amount of international interest. The region does not have the same degree of homogeneity as that of Europe, either in economies or formal economic relations. It also includes the huge population of China as well as the very small nation of Singapore. Cultural differences are also significant, exemplified by the differences in the two largest economies: Japan and China. Nevertheless, there have been some common characteristics of the region. Foremost has been that of rapid economic growth. Initially this was concentrated with the Japanese economy, but more recently the 'tiger' economies of South Korea, Taiwan and Singapore have attracted considerable international attention. Added to these developments has been the emergence of China as a world economic force.

The economies of Malaysia and Thailand have also grown at a rapid rate, and India is now emerging as an economic force. Indonesia too has shown a considerable amount of economic potential, but its failure to recover from the Asian downturn of the late 1990s now puts it apart from the other growth economies in Asia of the 1980s and 1990s.

With the exception of India these nations are in the eastern part of Asia, and collectively have displayed a relatively high degree of technological innovation and rapid industry sectoral development. We have chosen to examine the TVET systems in the nations of Japan, China and Singapore. These nations have different characteristics that can be useful for the comparative study. Size is an obvious variable, as well as stages in economic development, which have Rostowian (Rostow 1990) characteristics across the three nations. The three nations also have taken quite distinctive approaches towards TVET. The roles of the state in Singapore and Japan are in stark contrast, both in terms of administration of TVET and labour market regulation. China, on the other hand, recently has taken greater interest in TVET with the diversification of its economy.

The processes of skills formation in Japan and Singapore have been amongst the most studied at the international level in recent decades. In the past few years,



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however, there has been some questioning of the cultural and structural foundations of their approaches to industry skills formation. International economic changes appear to be posing some significant issues for the underpinning strengths of Japanese workplace culture that formerly were credited as the major contributors to its extraordinary success through the 1970s and 1980s. Singapore's style of a paternalistic state and highly competitive and demanding education and training is also seen as lacking some flexibility and scope for initiative in the new international economic order. China, on the other hand, is facing change of a different order. The extension of a market economy and the emergence of new industries are having a major impact upon demographics and employment patterns, and TVET is now looked towards as a potential solution to the emerging issues of unemployment, population migration, and industrial skilling.

These three nations, therefore, provide contrasting examples of economies and cultures that are subject to challenges from economic change. Their respective responses may help to throw some light on overall trends in TVET.

## China

### the economy

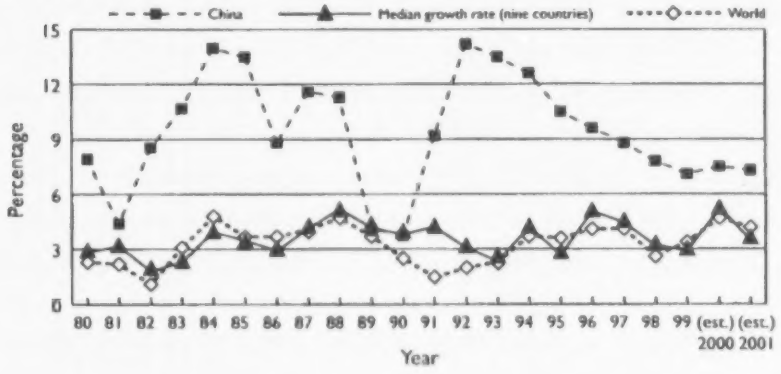
China is the world's most populous nation (1.25 billion, World Bank 2000) and is also home to a quarter of the world's poor. It is estimated that close to 70% of its people are located in rural areas. The size of the population and its location are key issues in the development challenges faced in China: in particular, the sheer numbers which must be fed, educated and maintained in health.

As a civilisation, China has demonstrated exceptional continuity over more than two millenniums, but it has also been 'one of the world's largest and fastest developing economies' (Benewick & Wingrove 1999, p.271). With a GDP annual growth rate of 10.1% between 1980–90, 10.7% between 1990–98, and between 7 and 8% per year since, the economy has maintained a high rate of growth though it is consistently slowing in all sectors.

From the founding of the People's Republic of China (PRC) in 1949 to 1978, economic output, though substantial, was dominated by state-owned enterprises (SOEs). The major problem of these SOEs was not lack of growth but inefficiencies. In order to become more competitive, 'a wholesale restructuring was required to redistribute resources into more productive channels with greater potential for long-term sustained economic growth' (Goodman 1999, p.133).

Since 1978, China has implemented a major strategy of economic reform. Initially reforms were focussed on 'improving incentives in agriculture and allowing the market to play a greater role in rural areas' (Fallon & Hunting 1999, p.1).

**figure 19: GDP growth rates 1980–2001**




source: IMF, World Economic Outlook Database 2000

Zhou (1999) suggests that there have been two distinctive features of economic reform in China compared with the economic reform of other socialist countries. First, China's reform has not followed a coherent program. Trial and error and accommodation of different opinions on reform strategy have shaped the gradual and piecemeal characteristics of China's industrial and urban reform (p.153).

**table 10: economic and education indicators**

| | China | nine-country median |
|---|---|---|
| Population (1999)[1] | 1 249.7 m | - |
| GDP per capita ($US) (1999)[2] | $791 | $24 715 |
| GDP annual growth rate (1990–99)[1] | 10.7% | 2.7% |
| Unemployment rate (1994–97)[3] | 3.0% | 4.9% |
| Youth unemployment rate 15–19 years (1998)[4] | n.a. | 15.2% |
| Average annual labour force growth rate (1990–99)[1] | 1.3% | 1.2% |
| Public expenditure on education as a % of GNP (1997)[1] | 2.3% | 4.8% |
| Net enrolment ratio – secondary education (1997)[3] | 70.0% | 92.0% |
| School expectancy (1998)*[4] | 10.1 yrs | 16.6 yrs |

* All levels of education combined and education for children under the age of five is excluded.

sources: (1) World Development Report 2000/2001; (2) IMF World Economic Outlook Sept. 2000; (3) World Development Indicators 2000; (4) OECD Database

The second distinctive feature of China's economic reform, according to Zhou (1999, p.153) has been its 'experimental and bottom-up nature'. Enterprise reforms have initially been trialled in local areas by local authorities and enterprises before being implemented on a national basis. It was local initiatives also that led to the development of a non-state sector. Zhou explains that this is 'partly due to China's more decentralised industrial administration structure and fiscal system' (1999, p.153).

China scholars of the Experimentalist School maintain that the gradual process of reform in China has been a product of economic experimentation and not of political accommodation (Wing 1999). However, Wing points out that it is hard to believe that the Chinese leadership has not been aware of, or influenced by, the knowledge of the experiences of its neighbours. The Experimentalist School would thus advise continued liberalisation in 'a tentative, incremental manner' (Wing 1999, p.57). By contrast, China scholars of the Convergence School recommend that China 'implements a Meiji-style wholesale adoption of key market institutions from abroad, and modify them through practice'.

**table 11: percentage of GDP output by type of enterprise**

| Type of enterprise | 1994 | 1995 | 1996 | 1997 |
|---|---|---|---|---|
| State-owned | 37.3 | 33.9 | 28.5 | 25.5 |
| Collective | 37.7 | 36.6 | 39.4 | 38.1 |
| Private | 10.0 | 12.9 | 15.5 | 17.9 |
| Other | 14.8 | 16.6 | 16.6 | 18.4 |

source: World Bank 1999, *Country profile, China 1998–99*

Since 1992, the reform process has accelerated and there has been a much stronger commitment to opening up of the economy. This has led to major reforms including liberalising ownership and governance of enterprises and allowing foreign investment. In more recent years, much of the development in manufacturing output has been through local government 'collective enterprises', township and village enterprises, and private Chinese, foreign or joint-owned ventures. By the end of the 1990s, production by enterprises outside the official state sector had risen to almost 75% of GDP (1997) and more than half of urban workers were employed outside SOEs (DTE-MOLSS 1999). Table 12 shows the contribution to GDP of different types of enterprises from 1994 to 1997.

The decline in output of SOEs is somewhat balanced by the growth within the private sector and the relative stability of production of collectives at village level. In 1997, the primary production sector was still the largest by far,

employing half of the population of China, though it declined by 10% in the period 1991–97, as shown in table 12.

**table 12: employment (and employment growth) by sector**

| Industry sector | 1997 (million) | % of workforce | 1991–97 % growth |
|---|---|---|---|
| Primary | 347 | 49.9 | -9.8 |
| Secondary | 164 | 23.7 | 1.3 |
| Tertiary | 183 | 26.4 | 7.5 |

source: DTE-MOLSS 1999

Strongest growth has been in the services sector with employment growth of more than 7%. The employment variation across sectors is mirrored in the variation of output across sectors as demonstrated in table 13.

**table 13: variations in percentage GDP across sectors**

| Sector | 1979 | 1989 | 1998 | 1999 |
|---|---|---|---|---|
| Agriculture | 31.2 | 25.0 | 18.6 | 17.3 |
| Industry | 47.4 | 43.0 | 49.3 | 49.7 |
| *Manufacturing* | *40.2* | *34.5* | *37.6* | *37.8* |
| Services | 21.4 | 32.0 | 32.1 | 32.9 |

source: World Bank 2000, *China at a glance*

These significant changes have also constituted major influences on the Chinese vocational education and training (VET) system. The move to a market economy has created a need for improved competitiveness and rapid growth over the past decade, resulting in increasing pressure on the VET system to create a skilled workforce able to meet the needs of an economically developing society. Restructuring of SOEs is also changing both employment patterns and needs for training and retraining across the nation.

The introduction of market elements into the Chinese economy has also created changes in this socialist society. New patterns of employment, including opportunities for self-employment and jobs created by and with foreign companies, have impacted on the aspirations of young people entering VET in China (Cheng 1994, Lumby & Li 1998). These changes have implications for the management of VET programs and institutions.

Although progress has been achieved in labour market liberalisation, it still retains some of its pre-reform features (Fallon & Hunting 1999). Within the old system of central planning, the state assigned workers to enterprises which

provided them with life-time job security, state administered wages and health and welfare benefits. There was very limited mobility between employers and a lack of links between worker productivity and wages which resulted in overstaffing. Fallon and Hunting (1999, p.1) point to three main features which characterise effective labour markets:

*(a) labor should be able to move freely between jobs*

*(b) employers should be able to expand and contract their workforces as they choose*

*(c) wages should be determined by market forces, and not by state regulation or formula*

They conclude that despite recent reforms, China still does not meet these criteria. There is still overstaffing in SOEs, under-employment of workers and restricted labour mobility. In rural areas there is a growing surplus of labour in agriculture and in urban areas, serious skill shortages.

While there has been enormous economic development during the last twenty years, high growth rates have resulted from expansion of the volume of production, increases in investment, benefits of low labour costs and the consumption of natural resources. These approaches have meant low efficiency, high consumption of resources and high pollution rates. There is recognition in China that such a model is not sustainable and that in order to meet demand, industry must restructure and be able to draw on greater labour quality, creativity and the use of new technologies.

However, the demand for professionals, technicians and skilled workers is growing faster than supply. Of the 140 million production workers in China, only 70 million are considered to be skilled and only about 35% of these have ever received VET training. (Huang 1999). China ranks 44th out of 47 countries on availability of skilled labour as shown in table 14.

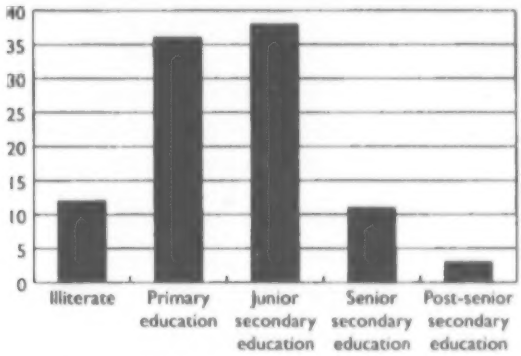
**table 14: availability of skilled labour, country ranking (out of 47 countries)**

| Country | Ranking | Country | Ranking |
|---|---|---|---|
| Australia | 1 | USA | 23 |
| Germany | 3 | Chile | 24 |
| France | 8 | United Kingdom | 34 |
| Singapore | 11 | Mexico | 36 |
| Japan | 16 | China | 44 |

source: *World competitiveness yearbook 1999*

Education levels of the entire labour force also reflect the shortage of skilled labour, as illustrated in figure 20. Only 14% of China's labour force have received higher than junior secondary education and of that, only 3% have completed education or training beyond high school. However, high growth rates of employment reflect the urgent demand for skilled labour.

**figure 20: levels of education of China's labour force**




source: DTE-MOLSS 1999

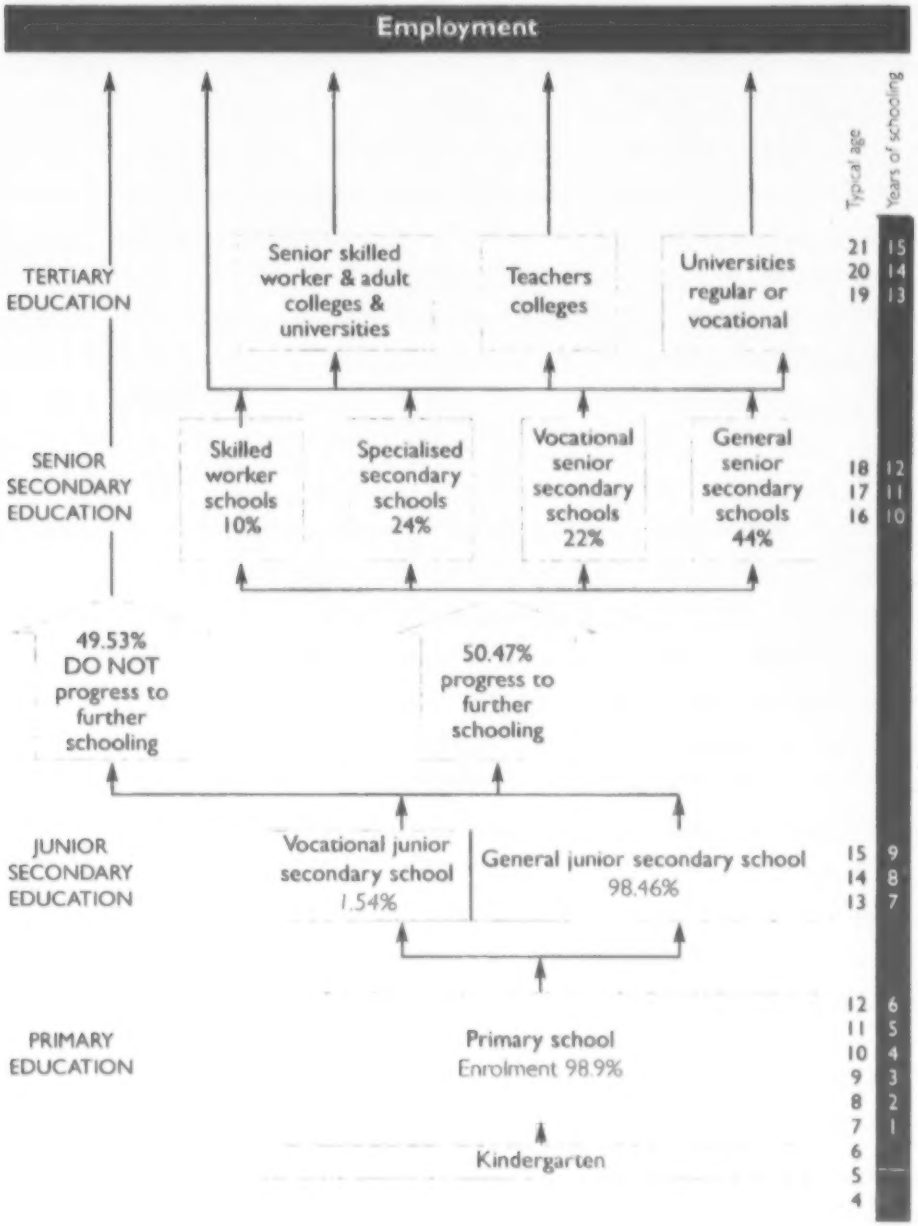
## the education system

Educational development in China over the last 20 years has been substantial with adult literacy rates increasing from 78% in 1980 to 91% in 1998 for males and from 52% to 75% for females. By 1998, youth illiteracy rates had fallen to an average 1% for males, though it was still 5% for females (WDI 2000). Almost universal enrolment (98.9%) rates in primary schools have been achieved in all but isolated rural areas, with most students (94%) proceeding to junior secondary school, higher rates than in most other lower income countries.

Enrolment in senior secondary education has increased from 32% in 1980 but is still only available for half of middle school graduates. Transition to tertiary education has increased from 2% in 1980 to about 6% in 1997 (WDI 2000). This rate is below the average among all Asian countries and similar only to countries such as Myanmar, Bangladesh and Vietnam.

Nearly universal entry into primary schooling and low enrolment in tertiary education, with a pattern of government spending that from 1982–93 allocated more than 60% of funds to basic education (primary and junior secondary levels), together reflect the Chinese education system's strong focus on equity.

**figure 21: the Chinese education and training system**



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Children enter kindergarten at around the age of five or six, complete six years of primary education and then mostly enter general junior secondary schools. The 1997 gross enrolment rate was 87% and the gap in junior secondary participation between rural and urban students and female and male students is gradually being narrowed. Compared with 2.7% gross enrolment at this level in 1949 and 21.6% in 1965, and taking account of the volume of demand, the improvement has been nothing short of spectacular.

As shown in figure 21, pathways begin to diverge after three years of junior secondary school (also called middle school). At the age of 15, following nine years of schooling, half of Chinese students exit the education system and attempt to enter the workforce. Within a context of such huge national demand—51.7 million students studying in more than 64 000 junior secondary schools (MOE 1998, p.5)—there is simply not the capacity to provide senior secondary places for all. Figure 21 shows the structure of the Chinese education system and approximate proportions of students enrolled in each level and type of institution during 1997 (CIVoTE 1998).

Those students who do progress to senior secondary education enter one of a range of institutions including general senior secondary, vocational senior secondary, skilled worker or specialised secondary schools. Table 15 provides an insight into the number of providers at different levels of the Chinese education sector and the distribution of students across these providers.

**table 15: Chinese education sector levels and size**

| Institution type | Number | Enrolments | Graduates | Teaching staff |
|---|---|---|---|---|
| Primary | 619 626 | 140.0 m | 21.0 m | 6.4 m |
| General secondary | 77 888 | 63.0 m | 18.3 m | 4.6 m |
| Senior | 13 948 | 9.4 m | 2.5 m | |
| Junior | 64 000 | 53.6 m | 15.8 m | |
| Secondary vocational | 10 074 | 5.4 m | 1.6 m | 480 000 |
| Senior | 8 602 | 4.5 m | 1.4 m | |
| Junior | 1 472 | 870 000 | 230 000 | |
| Skilled worker | 4 395 | 1.9 m | 700 000 | 309 000 |
| Specialised secondary | 4 109 | 5.0 m | 1.3 m | 546 000 |
| Undergraduate HE | 1 022 | 3.4 m | 1.0 m | 103 000 |
| Graduate HE | 409 | 185 000 | 43 500 | Not reported |

source: MOE 1999 *Essential statistics of education in China*, Development of Planning, Ministry of Education

Presently the VET system consists of vocational schools managed by the Ministry of Education (MOE), skilled worker schools managed by the Ministry of Labour and Social Security (MOLSS), technical schools managed by various departments and ministries plus private providers. Together, these providers deliver VET programs at the primary, secondary and tertiary levels.

The main providers are:

- vocational junior secondary schools (VJSs)
- senior secondary vocational schools (SVSs)
- secondary specialised schools which offer five-year advanced VET programs
- universities (tertiary VET)
- skilled worker schools (SWSs)
- employment training centres (ETCs)
- enterprise training centres

Two central ministries of the PRC claim ownership of key aspects of VET: the Department of Vocational and Adult Education (DVAE) of the Ministry of Education (MOE) and the Ministry of Labour and Social Security (MOLSS). The DVAE of the MOE, Beijing takes major national responsibility for VET. It was instrumental in drafting the 1996 Vocational Education Law of the PRC and has subsequently assumed responsibility for monitoring the progress of VET initiatives under this legislation. MOE also takes responsibility for the national policy and planning framework for VET and recently proposed new policy directions through *Invigorating education for the 21st century* (December 1998) and *Deepening educational reform*, focussed on implementing quality oriented education. These two documents set the blueprint for Chinese education in the 21st century.

The DVAE of the MOE oversees a national school-based VET system of secondary vocational schools and takes central control of the core curriculum. The Central Institute for Vocational and Technical Education (CIVoTE) in Beijing plays a role in establishing and monitoring curriculum development projects and endorsing of curriculum and textbooks.

Since 1998, management of tertiary VET has been taken on by the Department of Higher Education (DHE) of the MOE, previously only responsible for academic higher education. This move reflects the importance being placed on the role of VET at the tertiary level for both graduates of senior secondary

vocational schools and general senior secondary schools. It aims to provide higher skilled workers for the growing 'tertiary' industries and tertiary education options for secondary graduates beyond the very limited places offered by universities. Already 33.4% of all higher education students in China are studying in tertiary VET (Liu 1999).

At the provincial and municipal level, education commissions are responsible for the school-based VET delivery system together with general academic education. The Senior Secondary Vocational School Program in China is considered to be vocational even though its emphasis has been more on general vocational education and less on the generation of industry-relevant vocational skills. Secondary vocational schools issue awards of successful course completion but generally have no role in the establishment of occupational skill standards, their certification or student skills assessment. These functions are the responsibility of the Occupational Skills Testing Authority (OSTA) of the Ministry of Labour and Social Security (MOLSS). This separation of testing and certification from management and delivery of training is not uncommon in other countries.

In addition to occupational classification, standards setting, skill testing and certification, the MOLSS also provides vocational training in various forms and at various levels including:

- pre-employment training in skilled worker schools (SWSs)
- retraining of unemployed in employment training centres (ETCs)
- apprenticeship training
- in-service training (DTE-MOLSS 1999, p.4)

Unlike the large majority of MOE-operated institutions, some MOLSS vocational institutions training workers for particular industries have close funding/ governing relationships with related industry commissions and bureaus.

There is a commonly held perception that Chinese VET is nationally consistent, and it is true that the immense scale of VET provision in China combined with centralised control, drives the need for standardisation. Yet with the move to a market economy and considerable funding pressures on the government, the need for entrepreneurial activity which by its nature is difficult to control, is also great.

In the face of these tensions, the government has the task of meeting the diverse educational needs of communities which are:

- city and rural

- coastal and inland
- industrial and agricultural
- information rich and information poor
- culturally and linguistically diverse

This creates challenges for the VET system and the staff within it. However, VET teacher training levels in China are generally very low. As table 16 shows, only 37% of teachers (including academic stream) in senior secondary schools have undertaken an accredited teacher training course.

**table 16: educational attainment of full-time vocational school teachers**

| Educational attainment: % of teachers at school level/role | Teacher training in (normal) course at HE & over (%) | Short cycle HE course (%) | Specialised secondary ed. (%) | General secondary ed. & under (%) |
|---|---|---|---|---|
| Junior secondary | 5.0 | 65.6 | 24.8 | 4.2 |
| Senior secondary | 37.4 | 51.6 | 7.8 | 2.0 |
| Teacher training | 18.4 | 54.4 | 20.6 | 12.7 |

source: MOE 1999 *Essential statistics of education in China*, Development of Planning, Ministry of Education

Indeed, among teacher trainers, only 18% have completed such a course. There has been a strong reliance on short courses to provide basic training for teachers in addressing standard curriculum as interpreted in national or provincial textbooks. The recent decision to develop more tertiary VET institutions has focussed attention on teacher training and teachers with 'dual qualifications' have been developed. However, the dual focus has not been on theoretical and practical skills but rather on theoretical (discipline) and teaching skills.

Traditional Chinese methods of teaching referred to as *tian ya*—that is, duck feeding, where the teacher tells and the learners listen and attempt to remember—are perceived to be common. However, Perry and Volkoff (1999) question whether these perceptions accurately reflect contemporary VET teaching and learning experiences. They reported constructivist approaches of VET teachers in China and that the work of these teachers exhibited a commitment to student-centred approaches and a capacity to engage students in collective problem solving.

Tertiary VET institutions have developed significantly in the last two decades in response to the need for workers with advanced levels of technical skills. The rapid development of tertiary vocational education can be seen to both address the

demands of economic development and also to provide an impetus to the structural reform of higher education in China. It provides a way to open up entry to higher education and also to develop pathways to regular universities for students whose earlier studies have been through vocational institutions.

In developing tertiary VET institutions, the Chinese government has explored the features of the Canadian CBE model and the German Dual System. As well as nurturing the traditional core qualities in learners, there has been an emphasis on innovative ability, interpersonal skills, adaptability, problem solving ability and practical competence. These developments have also prompted recognition that it is not possible to develop advanced skilled workers with access only to school-based technical facilities and staff. There has consequently been a move to improve co-operation between institutions and industry.

## funding of VET in China

During 1997, funding for all vocational education and training in the PRC totalled more than 25 billion yuan, a growth of more than 13% from 1996 (CIVoTE 1999, p.47). However, public expenditure on education as a proportion of GNP at 2.3% in 1997 was well below the nine-country median of 4.8% and the OECD-country mean of 5.3%. In per capita terms, public expenditure on all education in China was markedly low: only 10% the rate for Chile, 1% the rate for Singapore and 0.8% the rate for France. The total expenditure can be broken down by category, as shown in table 17. Budget allocation is mainly at the district level with additional funding for key schools from municipal education commissions and the National Ministry of Education.

**table 17: sources of funding for VET in PRC, 1997**

| Source of funds | Percentage |
|---|---|
| Budget allocation | 51 |
| Tuition and fees | 22 |
| Enterprise allocation | 11 |
| Local taxes | 5 |
| School enterprise earnings | 2 |
| Other | 9 |

source: CIVoTE 1999

A national system exists for designating key vocational schools, based on a range of factors, including standard of equipment and facilities and teacher qualifications. Funding sources vary for these different levels of schools, with

national key schools able to access central MOE funds, provincial and municipal level schools accessing relevant government funds and district level schools gaining additional funds from district education commissions. Schools designated as key schools take on additional responsibilities for curriculum development and provision of professional development for staff of other schools. They are also more likely to be involved in national and provincial level project-based initiatives and reforms.

## continuing education

Some SOEs offer job training to their redundant workers, and in 1996 more than 4000 enterprise-based training programs offered a variety of courses (Fan et al. 1998). In addition, local labour bureaus provide training for unemployed workers and subsidise enterprise-based retraining. In 1996 there were 3500 labour bureau training agencies and more than 4.25 million people were enrolled across all programs, with people from rural areas and the unemployed the largest groups of trainees (Fan et al. 1998, p.48).

During the period 1990–97, the national average length of schooling among the population 15 years and older rose from 6.42 years to 7.08 years, a dramatic rise in such a huge population reflecting the size of the effort by government authorities (MOE 1998).

## issues

As China intensifies the privatisation of especially small and medium-size SOEs, a number of key economic reform challenges remain. These include reform of the large SOEs which were previously protected from change and nurtured with preferential loans (Wing 1999, p.59). Further challenges are the modernisation of the fiscal system and of federal–local fiscal relationships and the development of a non-state financial sector. The coastal provinces of China have benefited from preferential trade and investment policies and these will need to be amended to diminish inequalities for the relatively backward interior provinces. To ensure that social services are delivered adequately across regions, the state will need to focus on delivery of those aspects that markets will not equitably serve, including welfare, health and education (Wing 1999, p.60).

There will be a need for further expansion of subsidised training for the unemployed and this will need to be closely targetted to job market needs. Fan et al. (1998, p.53) suggest that this is more likely to mean the 'encouragement of greater training effort by private sector employers (or training service providers)

than expansion of government training institutes'. Further, they suggest that training will need to be directed towards enterprise managers to meet the demands of the changing environment, in particular, to take up financial, marketing and personnel management responsibilities.

Despite acknowledgement of the need for graduates to have highly developed, up-to-date skills, a number of factors militate against such achievement in China (Perry & Volkoff 1999). There is a cultural bias against vocationalism and community perceptions of the value of VET are negative. While the overall VET capacity is large—currently 17 000 VET institutions at the secondary level with about 12 million enrolments and approximately 100 tertiary VET institutions with an enrolment of about 500 000 (CIVoTE 1998) and increasing—the proportion of VET compared with general academic enrolments is decreasing. In China, as in many other countries, VET has been and still is considered to be the poor relation to higher education and therefore a less desirable destination for students. As Achtenhagen and Grubb (1998) point out, in many countries (including Australia), 'vocational education suffers from relatively low status and funding, as well as widespread ambivalence about its role in promoting individual mobility and social progress' (p.1). One of the results of the one child policy established in China in 1980 is that many parents are very committed to their only child receiving higher education.

A tension exists between the provision of opportunities for workplace-relevant skills development and an emphasis on 'general' education content. A lack of industry participation in all aspects of development and delivery of VET reduces the capacity of programs to effectively meet skill needs. The curriculum and standards upon which curriculum is built are frequently outdated and irrelevant to the needs of industry.

Most vocational schools do not have appropriate facilities for effective skills training and vocational teachers often lack practical skills and any workplace experience. The combination of poor technical resourcing at the school level, teachers with low workplace skills and the absence of collaborative relationships with enterprises means that programs offered demonstrate little integration of theory and practice. There is also a lack of diversity in delivery modes and locations.

There is a dual certification system with an absence of links between delivery and knowledge assessment and skills certification. Methods of assessment are often inappropriate with a strong emphasis on examinations. Educational pathways are relatively rigid and narrow and not transparent for learners.

In December 1998, the PRC Ministry of Education (MOE) issued a policy document *Invigorating education for the 21st century* which acknowledged challenges facing the VET sector and proposed some specific initiatives. In June 1999, a national education conference decided that VET development should be one of two key areas of educational reform. Perry and Volkoff (1999, p.8) note that, to bring about this reform, the Chinese Government has committed funding for key VET projects and initiatives including:

- the creation of fifty national vocational teacher training centres
- significant increases in the offering of VET places, including tertiary vocational education, designed to allow VET to become a pathway to higher education as well as play its current employment-oriented role
- a reduction in the number of vocational schools to be brought about mainly by amalgamations in order to streamline management and resourcing and to improve quality
- eighty VET curriculum development projects in thirty industries to be initiated and managed at the national level by MOE and supported by industry advisory groups
- a trend to shift management of all VET providers to eventually become the responsibility of one body, the MOE, rather than answerable to the MOLSS and occupation-related ministries
- increasingly localised policy making at the municipal and provincial level aimed at increasing the capacity of VET to effectively target and meet local and regional skill needs
- establishment of greater autonomy for VET providers
- promotion of more open and flexible learning arrangements within institutions, including the development of flexible delivery
- greater emphasis on practical skills training and development of personal and communication skills for learners to produce more effective workers
- a strong emphasis on development of improved relationships between education and industry including industry input to curriculum and access to industry resources
- reforms to assessment processes including the annual examination system, placing a greater focus on student skills development
- extension of the role of vocational schools to become more multi-functional, including provision of skills upgrading for employed workers, retraining for retrenched workers and assistance to graduates seeking employment (Huang 1999)

There are a number of key difficulties in China associated with providing appropriate training to supply the required skills at the appropriate time and in the necessary location. Firstly, the overall demand for secondary education cannot be met. Of the reported 15 million graduates from junior secondary schools, only 3.6 million can enter academic senior high schools and only 4.2 million can enter senior secondary VET institutions. The remaining 7 million, mainly living in agricultural areas, currently have no options for further training of any kind (Huang 1999). The huge demand, unmatched by a relatively low VET capacity, means that only a minority of the population is able to access post-compulsory education or training. In addition to limited places, aspiring students face the barrier of substantial fees, which cannot be met by disadvantaged groups. Thus a funneling effect occurs with only a small proportion of urban students and even fewer rural students acquiring senior secondary or post-senior secondary education.

Further, the capacity of VET to deliver training is not balanced across the nation. Reflecting broader economic trends, patterns of development of education have been uneven across China (Fukasaku et al. 1999). While primary education has been targetted to poor provinces, there has been inter-provincial variance in accessibility to post-primary education (Hossain 1997) with coastal, densely populated, industrialised areas offering greater opportunities for senior secondary education, both general and vocational, than rural areas, particularly those in the southern and western parts of China. Educational resources are less readily available in the poorer provinces and drop out rates also vary widely by geographic region. They are higher in rural areas, particularly at secondary level and for females (Hossain 1997).

Rural secondary vocational schools are encountering falling interest in agricultural courses and need to respond quickly to shifting demands. Mismatches between government planning for student places in particular courses and the level of student interest mean that institutions can no longer rely on state forecasting and have to formulate their own strategies for identification of stakeholder requirements (Lumby & Li 1998).

Additional difficulties arise from the trend away from national allocation of jobs. In the past, VET planning processes were relatively simple. VET program entrants were certain of job allocation on graduation. Training provision could be planned by the institution with a clear link between intake of students and job placement (Cheng 1994). However, as the transition from a state-controlled to a market-oriented system is made and student choice of career and program

becomes more prevalent, institutions face the challenge of meeting the needs of stakeholders and managing marketing, resources and curriculum issues. Cheng (1994, p.199) suggests that Chinese principals of VET institutions will 'face the same complexities of matching the offering of the school to a community of various stakeholders, as do UK principals'. These new challenges are being faced without adequate financial and human resources to effectively meet them.

Fan et al. (1998) argue that effectiveness measures such as comparisons between post-training earnings and pre-training earnings should be used to compare government job training programs with alternative providers. Government training institutions tend to be out of touch with market needs and provision needs to become more responsive. Possible strategies suggested to remedy this include the separation of financing from provision, better approaches to deriving labour market information and public–private collaboration. Hossain (1997, p.16) reported that the 1993 Labour Force Survey in China found very low private rates of return on investment in vocational education and training due to high unit costs rather than a lack of demand for skilled labour. Effective planning for development of skilled labour is one of the key challenges in a system where demand needs to be determined across such enormous regional diversity and VET itself is highly differentiated across provinces and specialisations. Improved teacher training, greater flexibility for students within courses, more effective resourcing and efficient use of training facilities are core needs.

The Chinese Government has received development assistance from British and German governments over many years to fund VET improvement projects. The Central (Research) Institute for Vocational and Technical Education (CIVoTE) in Beijing has been established with German government aid to undertake a variety of functions including data collection and analysis, curriculum development, evaluation and policy advice. In addition, a vocational teacher training institute has been developed in Tianjin to provide training and up-grading of VET teachers on a national basis. The Australian Government has committed, through AusAID, to fund a five-year program of VET reform, consistent with the focus of China's reform agenda, to be trialled in Chongqing, a municipality of more than 30 million people in the south west of China. This program, to commence in 2001, will draw upon the experience of Australian VET practice to enhance the quality and relevance of courses and qualifications, strengthen teaching practice and assessment, improve linkages with industry and implement quality improvement through systematic monitoring and evaluation. It will operate at three levels: national, municipal and provider. The MOE will monitor this and

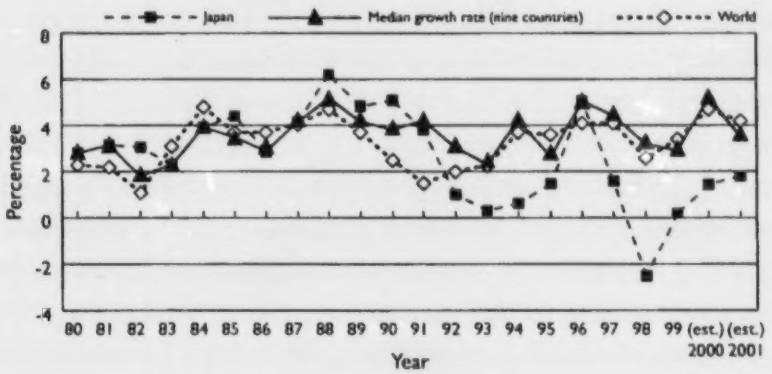
other reform projects to explore which VET reform processes might usefully be implemented on the national scale to assist China to meet the challenges facing it.

## Japan

### the economy

With a population of 126.6 million in 1999, Japan was the international economic pacesetter during the 1980s and into the 1990s. However, over the past decade the Japanese economy has faced difficulties. The rapid growth of the 1980s tapered off from 4% average annual GDP growth between 1980 and 1990 to 1.4% between 1990 and 1999. Since then it has failed to achieve the previous growth rate, and with the impact of the Asian financial crisis, GDP fell by 2.8% in 1998 and rose by only 0.3% in 1999. There is some debate as to whether the economic problems are essentially cyclical or structural, or both. Nevertheless, Japan has been forced to reassess its economic and industrial approach, and with this its approach to human capital formation as well.

**figure 22: GDP growth rates 1980–2001**




source: IMF, World Economic Outlook Database 2000

Japanese industrial production methods have been much studied and copied by other nations, although with limited success. Quality circles, just-in-time and lean production had their origins in the large Japanese manufacturing companies, notably automotive, machinery and transport equipment, electronics, and office machines and telecommunications equipment. They have also been associated with a high level of skills formation and labour productivity. The Japanese manufacturing changes in work organisation were largely responsible for the



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concept of post-Fordism (Streeck 1987). These changes have led to the intense debates over and interest in skills formation, and industry and wages policy. The apocalyptic choices of 'high skills and high wages or low skills and low wages' (e.g. Reich 1991; Mathews 1985) have been prompted by the Japanese experience.

It is important to note, however, that the manufacturing sector is not typical of the overall economy, although it is larger than in other equivalent economies (see table 5 in the appendix). Japan's economic growth and prosperity has relied heavily upon the large enterprises of the manufacturing sector compared to a relatively weak SME and non-manufacturing sector (Green & Sakamoto 2000). Furthermore, the high productivity of the manufacturing sector has relied, to a certain extent, upon high capital investment. Consequently, labour productivity in Japan is not exceptionally high, and is lower than in Germany and the USA.

Japan's manufacturing sector has also been characterised by its export orientation, innovative production techniques, high quality and rapid product innovation. Associated with these qualities has been a high rate of domestic expenditure on research and development (R&D), a high percentage of researchers in the labour force, a high percentage of engineering degrees, and a large number of patent registrations. These comparative features are demonstrated in the following table:

**table 18: comparative expenditure of research and development, researchers in the labour force, percentage of engineering degrees, patent registrations: selected countries**

| | Expenditure on R&D as a percentage of GDP, 1995 | Researchers per 10 000 of labour force, 1993 | Engineering degrees as a percentage of all degrees, 1995 | Number of patents, 1994 |
|---|---|---|---|---|
| Japan | 2.8 | 80 | 22 | 107 152 |
| UK | 2.1 | 49 | 13 | 2 234 |
| Germany | 2.3 | 58 | 19 | 6 731 |
| Singapore | 1.1 | 41 | - | 148 |
| USA | 2.6 | 74 | 7 | 260 130 |
| OECD | 2.2 | 58 | 13 | - |

source: Green & Sakamoto 2000

Pressure upon the high exporting manufacturing sector in the mid-1980s led to a response of more of the same: high levels of product innovation and higher

levels of productivity. This was partially achieved through continued innovations in work practices, but it was mainly achieved through very high levels of capital investment. This, together with high levels of real estate investment, led to what was known as the 'bubble economy'. It effectively burst in the early 1990s and Japanese policy makers have been attempting to deal with the consequences since.

**table 19: economic and education indicators**

| | Japan | nine-country median |
|---|---|---|
| Population (1999)[1] | 126.6 m | - |
| GDP per capita ($US) (1999)[2] | $34 386 | $24 715 |
| GDP annual growth rate (1990–99)[1] | 1.4% | 2.7% |
| Unemployment rate (1994–97)[3] | 3.4% | 4.9% |
| Youth unemployment rate 15–19 years (1998)[4] | na | 15.2% |
| Average annual labour force growth rate (1990–99)[1] | 0.7% | 1.2% |
| Public expenditure on education as a % of GNP (1997)[1] | 3.6% | 4.8% |
| Net enrolment ratio – secondary education (1997)[3] | 100.0% | 92.0% |
| School expectancy (1998)*[4] | na | 16.6 yrs |

* All levels of education combined and education for children under the age of five is excluded

sources: (1) World Development Report 2000/2001; (2) IMF World Economic Outlook Sept. 2000; (3) World Development Indicators 2000; (4) OECD Database

On the other hand, Japan's economic performance has been impressive in its social outcomes. Unemployment and youth unemployment are low (see table 4 in the appendix), the system of lifetime employment provides a strong welfare function (at least for a proportion of the population), and income distribution is more even than in the market-oriented economies of the UK and USA.

Furthermore, SMEs in Japan are frequently linked to the large manufacturing companies through what is known as the 'conveyor' system. This system involves close relationships between the large companies and the SMEs built upon a relationship of trust and loyalty, that have the social benefits of employment stability and community focus (Green & Sakamoto 2000).

The Japanese economy has been described by Green (2000a) as a type of managed capitalism. State intervention in the economy is greater than is frequently attributed. State loyalty is high, and the well-ordered nature (Cantor 1989) of the society brings a mutual expectation for the state to maintain economic order. The relationship between social and community interests and the

economy is very close in Japan. Thus cultural values and relations are linked to economic relations, including those between the state and industry. Thus state intervention, including intervention through the education system, will typically address both economic and cultural ends.

**table 20: distribution of income**

| | Lowest 10% | Lowest 20% | Second 20% | Third 20% | Fourth 20% | Highest 20% | Highest 10% |
|---|---|---|---|---|---|---|---|
| Japan (1993) | 4.8 | 10.6 | 14.2 | 17.6 | 22.0 | 35.7 | 21.7 |
| China (1998) | 2.4 | 5.9 | 10.2 | 15.1 | 22.2 | 46.6 | 30.4 |
| France (1995) | 2.8 | 7.2 | 12.6 | 17.2 | 22.8 | 40.2 | 25.1 |
| Mexico (1995) | 1.4 | 3.6 | 7.2 | 11.8 | 19.2 | 58.2 | 42.8 |
| Chile (1994) | 1.4 | 3.5 | 6.6 | 10.9 | 18.1 | 61.0 | 46.1 |
| Germany (1994) | 3.3 | 8.2 | 13.2 | 17.5 | 22.7 | 38.5 | 23.7 |
| UK (1991) | 2.6 | 6.6 | 11.5 | 16.3 | 22.7 | 43.0 | 27.3 |
| USA (1997) | 1.8 | 5.2 | 10.5 | 15.6 | 22.4 | 46.4 | 30.5 |

note: Singapore data is not available
source: World Bank, World Development Report 2000/2001, Selected World Development Indicators

## cultural assets

Japan has been described as a 'high trust' society (Fukuyama 1995). There has been a traditional emphasis on harmony, conflict avoidance and group interests. This also involves a stress on an extended concept of loyalty beyond the family to non-kin. Group and community consciousness have also been served by a different and flatter class structure, where the top 20% of households receive only 35.7% of personal income, the lowest amongst all countries in table 20.

These cultural traits are seen to have influenced the structures of Japanese enterprises which in turn have contributed to the productivity of the Japanese economy. Firstly the *Keiretsu* is a group of interlocking companies with cross-share ownership and a culture of mutual support which provided the foundation for the rise of Japan's powerful multinational enterprise (Green 1999, p.22). The *Keiretsu* is both vertical (or within one industry) and horizontal (where a ring of companies in related industries are connected). The *Keiretsu*, therefore, is able to provide greater stability to enterprises than in other developed countries. This is because of their shareholder structures, the high degree of trust, and the interdependency of enterprises. It is also an extended quality circle with a high degree of market information. Thus Japanese firms are able to plan for the long term, including investing in training, and be less pressured by the need for short-term returns.

Secondly, the firm forms the key *iemoto* group, or filial group in the society, although this is only for the 30% of employees who have long-term employment. This leads to high levels of company loyalty and is the basis of the Japanese management system that has flatter structures, high levels of worker flexibility, low levels of labour turnover and a long-term commitment to training and human resource development.

## skills formation

Japan, together with Germany, has been seen as one of the two leading pacesetters in the pursuit of the goal of skills formation throughout the 1980s. The two countries, however, have taken radically different approaches. Japanese skills formation is based upon a high standard of general education and a heavy investment in enterprise-based education. A range of commentators has identified a high standard of general education as the critical foundation for more specialised skills formation. The standard of Japanese schooling is very high, and in the areas of mathematics and science is second only to that of Singapore.

As indicated in table 21 below, Japan exceeds mean expenditure per student at all levels of education, except early childhood.

**table 21: expenditure per student ($US) on public and private institutions by level of education, 1997**

| | Japan | nine-country median* | OECD-country median |
|---|---|---|---|
| Early childhood | $3 096 | $3 603 (7) | $3 463 |
| Primary | 5 202 | 3 470 (7) | 3 851 |
| Lower secondary | 5 512 | 3 983 (5) | 4 791 |
| Upper secondary | 6 314 | 5 492 (5) | 5 790 |
| All secondary | 5 917 | 4 927 (7) | 5 274 |
| All tertiary | 10 157 | 9 390 (7) | 8 612 |

* Data for all countries is not available. Figures in brackets indicate how many countries for which data was available.
source: OECD Education Database, table B4.1

Skills formation is seen to be favoured by the particular structure of Japanese firms that avoids most of the major disincentives for investment in training. High wages for core employees and high levels of company loyalty reduce labour turnover. Consequently, enterprises are less worried about poaching of skilled workers. The *Keiretsu* system is also another factor in reducing turnover and also acts as a means of internal or group skills transfer. Quality circles, teamwork and

flat management structures are all conducive to internal skills formation and help to avoid the consistent tendency of large enterprises to bias training investment in favour of management levels. The culture of *iemoto* is conducive to the development of a training culture, including a type of paternalistic relationship between older and newer workers observed by Dore and Sako (1989) in their seminal work.

A third aspect of the skills formation system in Japan is the process of transition from education to employment. This is built upon a highly structured and close relationship between education and the labour market and compares with the very loose and unstructured relationship in Australia (McKenzie 1999). We examine each of these aspects in more detail.

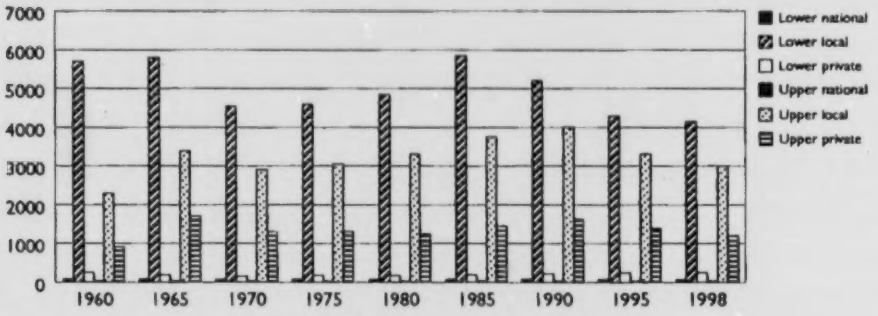
## the education system

Japan is one of only five countries (the other four are European) to have recorded a zero rate of illiteracy (*World competitiveness yearbook* 1999). A strong principle of egalitarianism underlies the Japanese school system and it is characterised by a high degree of consistency in outcomes (Dore & Sako 1989; OECD 1997; Green et al. 1999). There is an underlying assumption that the vast majority of children are capable of learning and understanding provided they are properly supported and that they work hard. Effort rather than native ability is seen as the key to success. It is a highly meritocratic system, but it has been marked by a relatively high level of equality of educational outcomes, as verified by international science and mathematical testing (OECD 1997; Green et al. 1999).

There have been various efforts to maintain a relatively uniform and egalitarian system. These include centralised curriculum control and distribution of resources through the central agency *Monbusho* and the rotation of teachers and principals. The curriculum emphasises group work within comprehensive unstreamed structures. Uniformity and equality is also served by the direct relationship between enterprises and schools, which is also built upon the tradition of high trust between education and industry, in marked contrast to the situation in Australia. There are pressures upon these traditions, however, with a greater demand for choice and a growth in the private school sector. The existence of highly competitive end-of-school examinations has also created major pressures (Dore 1998). Schools are mainly local schools, with a small number of national schools and a growing number of private schools. Enrolment trends are demonstrated in figure 23.

The school system is seen as playing a critical role in both social cohesion and human capital formation. As well as its goal of high overall standards, the education system stresses moral education, civil responsibility and social discipline (Green 2000). These broad social and economic goals have been complementary. The school system produces labour market entrants who have good basic skills and are easy to train. It also provides a broad platform for the development of a wide range of skills, and it instills the virtues of loyalty, teamwork, co-operation and work discipline in the workforce. The school system also reinforces a strong sense of loyalty to the goals of a national economy.

**figure 23: lower and upper secondary enrolments, 1960–98**




source: MESSC 1999

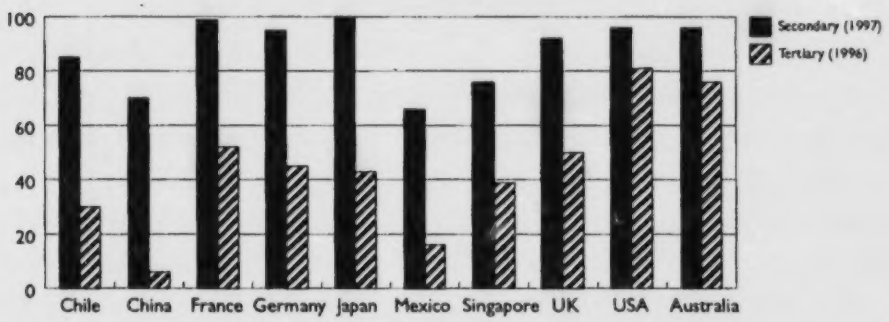
The relationship between the education system and the economy is built upon the preponderance of internal labour markets in Japan. There is little specialised skills training within IVT. Learning is on the job and mostly through informal means. Due to low job rotation, and labour market entrance differentiated by the educational institution attended and its relationship with particular enterprises, there has been no need for a national qualifications system. Once again, the high trust nature of the society allows employers to view school and college credentials at their face value, mediated by the prestige of the institution.

Participation in secondary education, as measured by the net enrolment ratio (the ratio of the number of students of official school age to the population of corresponding official school age) was 100% for Japan in 1997, the highest of all countries in figure 24.

The school system is based upon a 6:3:3 structure that includes junior and upper secondary levels. It is essentially comprehensive with the exception of the

specialised or vocational courses in the upper secondary years. Ninety-six per cent of students continue into the upper secondary years, and only 24% of students leaving upper secondary education directly enter the labour market (OECD 1999b). Only 23.5% of upper secondary enrolments are specialised, and 61% of these students directly enter the labour market. As in most countries, the specialised courses are of lower status as they rarely articulate with university education (about 8%), or even with the special training colleges (24% compared with 31% for the general courses). In Japan the problem of low status and academic drift are in an extreme form. This problem is exacerbated by an informal hierarchy of schools. The relative enrolments of the specialised courses have been decreasing.

**figure 24: net enrolment ratios (and of relevant age group) for secondary and tertiary education**



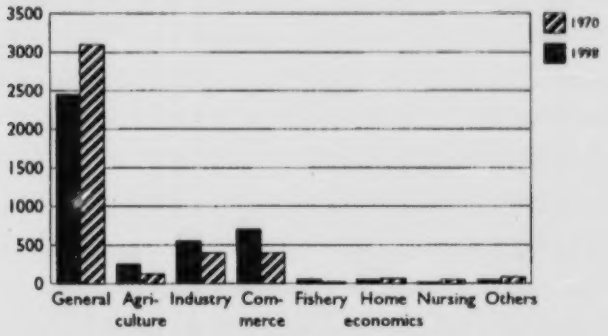

source: World Development Indicators, 1999 and 2000

Typically the higher status of the general schools is their clearer route to higher education and the reason for the very large size of this sector. The specialised courses were originally oriented towards the labour market, but labour market entrants from these schools have dropped from approximately 85% to 61% in 1997, and this fall is likely to continue (Yoshiomoto 1998). This is typical of other vocational and labour market-oriented courses in other countries, such as the French *baccalauréate professionelle*, and perhaps the Australian junior technical schools. Thus the OECD has observed the trend for secondary vocational programs to be oriented towards both employment and tertiary education. This is also a policy direction in Japan.

Specialised courses retain a heavy emphasis upon general education subjects (about 35–45%) but also emphasis 'hands-on skills'. Although there have been extensive efforts to involve industry through clubs and associations, on-the-

job training has not been a common feature of these programs. The *Monbusho* has initiated a range of programs to try and establish stronger links with industry (Yoshiomoto 1998). These include teacher exchanges with industry, work experience programs for students, internships and partnerships between schools and enterprises (OECD 1999b).

**figure 25: courses by specialisation, 1970–1998**

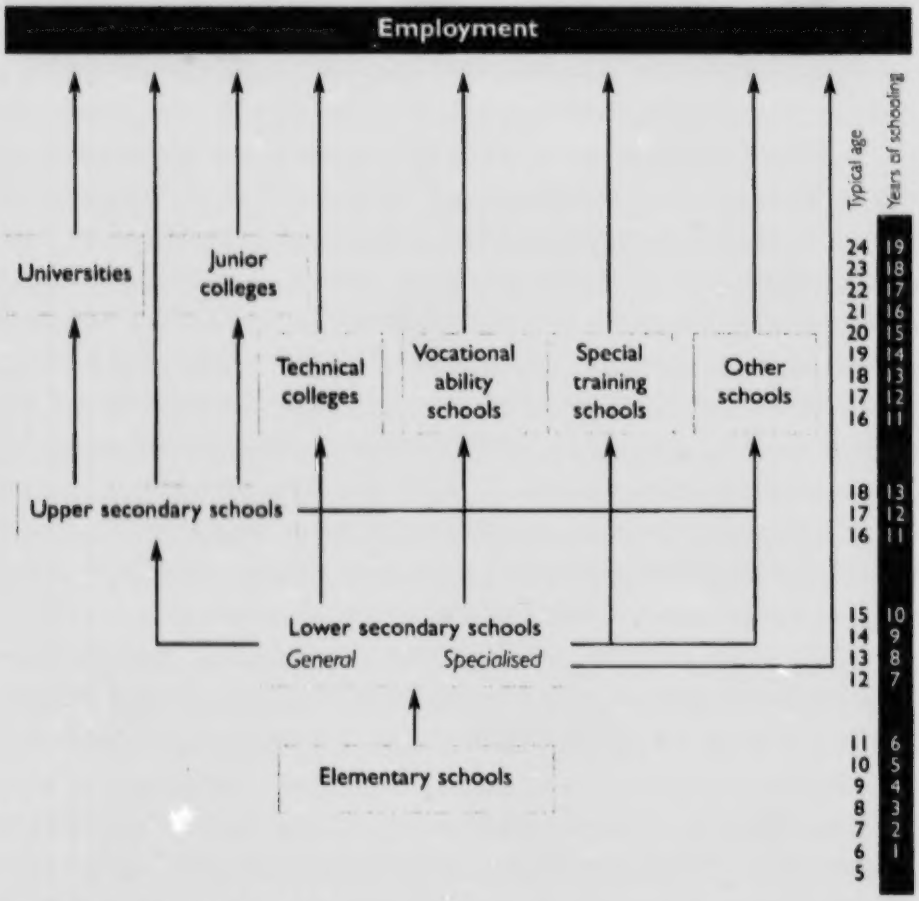



source: MESSC 1999

The goal of the *Monbusho* is to make specialised secondary education equal to general education, and a series of recommendations to this end have been provided by the Scientific Education and Industrial Council. OECD examiners, however, have observed that there is 'a lack of clarity, and consequently the absence of consensus, on the role of specialised upper-secondary education in Japan and on the labour market's demand for it' (1999, p.22).

At the post-school level the education system includes higher education institutions, special training schools, vocational ability development schools and miscellaneous schools. Higher education is further broken down into universities and junior colleges, for which entrants require upper secondary education, and technical colleges, which require a junior secondary certificate. The special training schools have no general academic entrance requirements and provide both general and vocational courses. The vocational ability schools, under the Ministry of Labour, serve a variety of clients, including school leavers, current and displaced workers. There are also government schools run by various government agencies, largely for their own recruits, such as the National Defense Academy, Civil Aviation College and the National Tax College (Yoshiomoto 1998). The overall structure of the education system is illustrated in figure 26.

**figure26: the Japanese education and training system**




## initial vocational training

Initial vocational training in Japan, therefore, is essentially institutionally based, and heavily oriented towards a generalist foundation. Apprenticeship training is virtually non-existent, and initial in-company training tends to rely upon company facilities for theoretical and technical instruction. The bulk of specialist IVT occurs within the school system, as described above, within the universities (where there is a strong emphasis upon engineering faculties) and the special training colleges. Enrolments for each type of institution are indicated in table 22.

The highest levels of enrolments in universities are in social sciences (971 101) with private universities accounting for most of the social science and



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humanities enrolments. Engineering enrolments are the second highest (472 252) and account for 42% of all graduate school enrolments. The patterns are similar for the junior colleges, but with a broader pattern of vocational courses and less emphasis upon engineering.

**table 22: enrolments in tertiary institutions, 1970 and 1998**

| Type of institution | 1970 | 1998 |
|---|---|---|
| Colleges of technology* | 22 208 | 56 214 |
| Universities | 1 406 521 | 2 669 086 |
| Junior colleges | 259 747 | 407 407 |
| Specialist training colleges | (1995) 131 492 | 761 049 |
| Miscellaneous (other) schools | 1 352 686 | 253 093 |

* Most enrolments are at the lower levels (i.e. lower than higher education), but 29% of students advanced to the higher levels in 1998.
source: MESSC 1999

Courses in the special training schools are more strongly oriented towards the vocational, but also include general courses. It is in the schools under the supervision of the Ministry of Labour that courses most approximate the IVT familiar to Australian and European observers. Facilities include 240 human resources development centres and 29 polytechnic colleges. To a certain extent, these institutions are oriented towards young people most at risk of falling out of the highly structured Japanese transition process. As youth unemployment grows this process is likely to be under greater strain and the Japanese government may feel the need for a greater investment in these types of institutions. There are also training schools run by enterprises. Some of these are long standing, such as the Nissan Technical College that was started in 1938 (Sugama 1975).

IVT in Japan, therefore, is either very small or highly generalised. The 'system' is likely to be subject to contradictory pressures of generalisation at the school level and greater specialisation at the post- or para-school levels.

## continuing vocational training

It has been in the area of continuing vocational training that Japan has attracted most international attention. The structure of the Japanese economy and the labour market, together with the society's overall cultural foundations make it particularly conducive to CVT. The internal labour markets and the filial relations of the *Keiretsu* are conducive to low labour turnover and to employee commitment to training and skills improvement. The paternalistic nature of enterprises leads them

to support worker training, which is reciprocated through workers' time and commitment. Official figures that indicate that Japanese firms spend only 0.5% of payroll on training are misleading. Most training is in-company and supplied by the firm in either formal settings or as informal and continuous training. Dore and Sako (1989) chronicle the opportunistic and paternalistic attitude of older workers in Japanese workplaces to training for new recruits. Opportunities for training are taken in downtime and Japanese enterprises have made efforts to retain staff and invest in training during the troughs of the economic cycles.

As a consequence of the dominance of CVT in Japan, there is a tendency for skills to be company specific. Skills transfer takes place largely on the job through standard work practice rather than in a more regulated environment and thus is dependent upon the maintenance of internal labour markets. CVT is also well served by the overall standards of education in Japan. Japanese companies have shown a great capacity to absorb new knowledge as indicated by the large number of patents registered in Japan (see table 18).

Japanese workers' positive attitude towards skills formation is reinforced by the habit of skills tests. Workers undertake these tests for the overwhelming reason that 'their employers want them to' (Dore & Sako 1989, p.114). Formal skills testing is more prominent in smaller firms that have more limited internal labour markets, and which tend to be at the recipient end of the 'conveyer system'. On the whole, industry bodies run skills testing. The Labour Ministry establishes 'standards' for training programs. These standards are for the program, rather than competency standards (Sugama 1995). Instructors are licensed by the Ministry.

The majority of public TVET qualifications fall under the Ministry of Labour, but central government departments control a range of qualifications for legal entry to practice in occupations, government appointments (such as teaching) and high levels of occupational performance. While there is no consistent framework for qualifications in Japan, there is no shortage of qualifications (Dore 1997).

## education and industry: the transition process

Central to the system of skills formation in Japan is the transition process from education to employment. A high degree of segmentation of the youth labour market is a feature of most countries, but it is exaggerated in Japan. Because transition is highly structured and based upon direct relationships between education and training institutions and enterprises, segmentation is based upon institutional status.

As Ishida (1998) points out, Japanese youth are differentiated both horizontally and vertically when entering the labour market. The direct relationship between enterprises and education institutions and courses is generally based upon a relationship of the relative prestige of both the institution and the enterprise. This is not an absolute relationship and the government has made efforts to encourage enterprises to establish relationships with a range of education institutions. The relationship between enterprises and institutions is based upon trust, such that employers will depend upon teachers and administrators to supply them with graduates who will meet the needs and standards required by the enterprise. This creates a second form of differentiation, with students competing to gain recommendations to the more prestigious enterprises.

This competitive structure of education and the labour market contrasts with other economies where education grades do not appear to have such an impact on labour market entry, such as the USA (Rosenbaum & Kariya 1991) and Australia (Keating 1999b). Occupational division, as in Germany, is not a major factor in labour market entry and this exaggerates the competitive pressures upon the Japanese labour market (Inui 1993) towards a more unified or undifferentiated model. This is widely regarded as contributing towards the intensive competition in Japanese education, although Takeuchi (1991) has argued that cultural factors also contribute to this.

The nature of the transition process, therefore, is a key factor in the Japanese approach to skills formation and vocational training. The transition process is largely unified, where differentiation is based more upon unified concepts of educational achievement rather than occupational or industrial. Correspondingly, the high degree of segmentation in the transition process is based upon educational institution structures and competitive educational performance. This is a powerful disincentive against institutionally based IVT and is reflected in the evidence above.

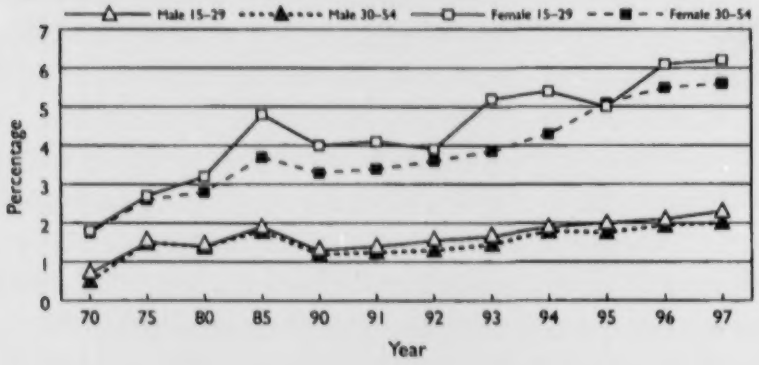
What is described here is an elite system. The overwhelming majority of young people in Japan do not enter the prestigious lifetime employment towards which the 'system' is geared. But as the elite element, this system provides market leadership and few educational institutions can afford not to play the game, as most parents are conscious of the relationship between employment and competitive educational outcomes. In such a highly structured, but elite, system it has been necessary for the Japanese government to bolster the education system with a substantial guidance service. This is located at both the school and the

district levels and involves an extensive range of activities, including activities for teachers. This is supplemented by an extensive network of employment bureaus run by the Ministry of Labour that work with enterprises and educational institutions in allocating people within the labour market.

## issues

The highly institutionalised transition system in Japan has been buttressed by a long period of full employment. The inflexibilities of the system would be telling in a situation of moderate let alone high unemployment. Unemployment has only recently emerged and at a late stage the gaps between youth and adult employment now appear to be growing, as indicated in the following figure:

**figure 27: unemployment rates, 1970–97**




source: OECD 1996

National approaches to IVT in most of the countries included in this study (including Australia) have been strongly influenced by the transition processes and outcomes for young people (OECD 1999a). Japan has had the luxury of being able to ignore this policy area. If youth unemployment continues to grow, however, this luxury will disappear and the inadequacies of the present transition 'system' will become apparent. This may contribute towards a rethink about the role of education institutions in IVT in Japan.

While manufacturing industries have continued to achieve productivity improvements, their share of employment has fallen from 25% in 1995 to 22% in 1997 (Green 1999a), and share of GDP has fallen from 28% in 1990 to 24% in 1999 (World Bank 2000). Given the strength of lifelong employment in this sector, its share of recruitment of new labour market entrants has fallen much more. Other weaknesses of the Japanese industrial system have also emerged. The

company system of *Keiretsu* has a downside of cronyism and in times of cyclical downturn has led to unwise investments. One symptom of this has been the intense pressure on some major Japanese banks. This has been intensified by the high domestic savings ratio, exaggerated by recession and the consequential and injudicious competition among banks to provide loans. Because of the length of the recession, Japanese firms are now faced with the prospect of laying off workers, rather than carrying them over as in past downturns. This in turn is leading to fewer long-term employees in companies and certainly to lower prospects for long-term employment status for new labour market entrants. This trend, together with pressure upon workers to provide more, is placing strains on the traditional loyalty of Japanese workers.

Other pressures associated with global competition and the increased use of advanced technology are leading to the problem of the 'missing middle' (Sakamoto-Vandenberg et al. 1998). This refers to workers who have a strong foundation in specialist theoretical knowledge. The general education foundation, the 'unified' and competitive recruitment model, or the system of in-company CVT do not provide this type of worker. Hence there is pressure emerging for more classroom-based technical training, external to the enterprise. At the same time there are skills shortages in some industries that are seen as dirty and dangerous. Students raised in the general education system are disinclined to enter these occupations and this is reinforced by parental attitudes, educational cultures and transition systems that are not occupationally oriented. As employment in Japan somewhat belatedly moves towards the SMEs, the overall orientation of the education and transition systems is becoming less appropriate.

Further problems have been created through the length of the recession. Pressure for more short-term returns is emerging in Japanese industries and there are some signs of changing ownership patterns that are more similar to those in the USA and the UK. This is likely to create pressure to reduce enterprises' training effort and to concentrate training investments upon a small set of core workers.

These trends should not be exaggerated, but there are signs that problems in skills formation that are more familiar to other OECD countries, including Australia, are beginning to emerge in Japan. Consequently there is much discussion in Japanese economic and education policy about the need for more creativity, flexibility and individuality. While the cultures of loyalty and group consciousness are still valued, there is an emerging recognition that they will need to be complemented with another set of skills and aptitudes.

These issues have recently combined with other issues associated with the school system. The competitive nature of secondary schooling, in particular, is seen as seriously overheated and having contributed to other problems such as bullying and an emerging dropout element. Together these issues have contributed towards some rethinking of the orientation of Japanese education along the lines of the need for greater flexibility in the curriculum, stronger links with industry and the labour market, the strengthening of vocational education—especially at the secondary level—and promoting individuality (OECD 1999b). At the same time, however, the values of 'inclusiveness' that have been the hallmark of the system are to be maintained.

Both the Ministry of Labour and the *Monbusho* have responded with a range of measures such as better guidance and labour market information and support, the promotion of internships, and curriculum reforms, including the broadening of the curriculum. Changes to the basic system of IVT in Japan are not yet apparent, and it is not yet clear whether there will be an effort to develop more highly specialised technical and vocational programs for prospective labour market entrants. In the same manner, the apparent pressure for more specialised off-the-job training for employed workers is not yet apparent. Curtain (1991), in comparing Japan's and Australia's responses to the recession of the late 1980s, observed that Japan would not be able to maintain its system of skills formation. Despite the adroitness of this prediction, the directions of change are still not clear.

## Singapore

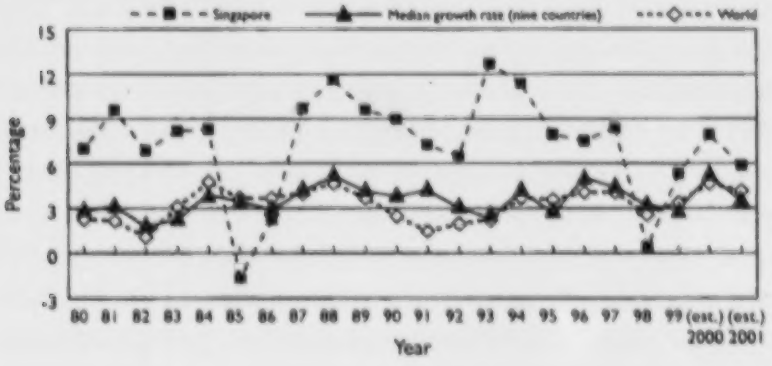
### the economy

As a small island state with a population of only 3.2 million people, Singapore is one of the world's smallest nations. Its population density of 5283 people per square kilometre is second only to that of Hong Kong. Though its annual economic growth has slowed from an average of 8% in the 1990s to 5.4% in 1999, it is still, in per capita terms, the eighth wealthiest country in the world and second only to Japan in Asia. (WDR 2000).

Since Singapore became self-governing in 1959, the government has always been drawn from one party, the PAP. This unbroken period in power has afforded the government opportunities to exercise strong control of most aspects of the society. According to Green (1999, p.45), it has built the economy and the nation through a process of 'medium and long-term planning, strategic support for

growth industries, the rapid development of appropriate infrastructures and adequate manpower and through careful and detailed management of society in line with the priorities of economic growth'.

**figure 28: GDP growth rates, 1980–2001**




source: IMF, World Economic Outlook Database, 2000

Since its beginnings, Singapore has been a multi-racial, multi-lingual and multi-faith society. Its people are largely from four main groups: Malays, Indians, Chinese and others. The Chinese make up approximately three quarters of the population (Quah 1984).

Clearly, such a tiny population is too small to constitute a viable market, so it has been essential for Singapore to actively develop export markets. The diversity of the population and its links to other markets appeared to offer opportunities for the development of trade links. Since independence, the government has consistently worked at attracting foreign investment and developing industry and exports suited to the constraints of limited land availability and a lack of natural resources.

Despite these limitations, Singapore has also had some key advantages over other nations. In addition to its long history of trading through an entrepot port, it has an able and uncorrupted public service and widespread English language fluency. Green (1999, p.46) states that the ruling government set out to systematically cultivate foreign investment by strengthening four existing advantages: 'political stability, disciplined and skilled labour, a good infrastructure of transport and communication and a pleasant and safe physical environment.' However, in the 1970s, the government acknowledged the difficulties of trying to compete with other countries in the region in manufacturing when their labour



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costs were so much lower. Consequently, it decided to shift the emphasis to the development of higher value-added industries and began promoting itself as a regional hub in business, medical, cultural and other services. As a result, many multinational companies have been induced to locate their headquarters in Singapore. These efforts have been spectacularly successful and now over 50% of Singaporeans in the labour force work for foreign-owned companies.

Fully independent only since 1965, Singapore has achieved great economic growth in a relatively short period. One of Asia's 'tiger economies', Singapore has weathered the economic downturn which began in 1997 and devastated other economies in the region. According to the World Bank, Singapore, along with China and Taiwan, is responsible for buoying up the East Asian region and helping to make it the world's fastest growing emerging market. In 1999 the Singapore economy achieved a 5.4% growth in output, showing a remarkable recovery from its 1998 level of 0.4% (World Bank). Figure 23 shows key economic and education indicators and demonstrates a healthy GDP growth rate coupled with very low unemployment.

**table 23: economic and education indicators**

| | Singapore | nine-country median |
|---|---|---|
| Population (1999)[1] | 3.2 m | - |
| GDP per capita ($US) (1999)[2] | $24 807 | $24 715 |
| GDP annual growth rate (1990–99)[1] | 8.0% | 2.7% |
| Unemployment rate (1994–97)[3] | 2.4% | 4.9% |
| Youth unemployment rate 15–19 years (1998)[4] | na | 15.2% |
| Average annual labour force growth rate (1990–99)[1] | 1.7% | 1.2% |
| Public expenditure on education as a % of GNP (1997)[1] | 3.0% | 4.8% |
| Net enrolment ratio – secondary education (1997)[3] | 76.0% | 92.0% |
| School expectancy (1998)*[4] | na | 16.6 yrs |

* All levels of education combined and education for children under the age of five is excluded

sources: (1) World Development Report 2000/2001; (2) IMF World Economic Outlook Sept. 2000; (3) World Development Indicators 2000; (4) OECD Database

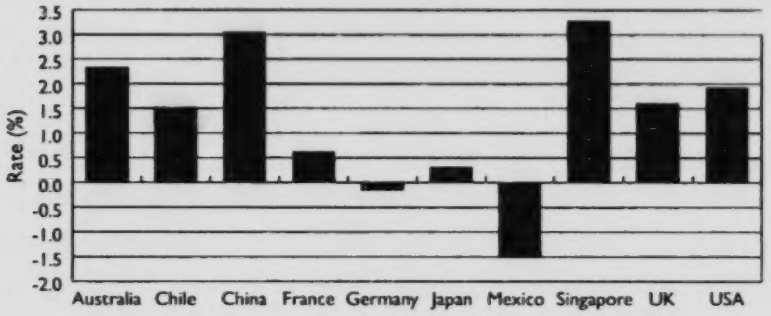
The economic success of Singapore, a country with few natural resources, has derived from its emphasis on manufacturing, commerce and services for output and employment. This emphasis has been made possible through active development and utilisation of skills and abilities of its people, supplemented by labour migration from abroad. Migrant workers accounted for 20.5% of the labour force in 1996 (Alto et al. 2000, p.223). In the period from 1984 to 1998,

employment in the manufacturing sector declined while, in line with economic development, employment in professional, technical and managerial occupations rose significantly, from 21.8% in 1984 to 32.4% in 1994 (Green 1999, p.48).

The growth of service economies in South East Asia was three times the world average during the 1990s (WDI 1999) and, in Singapore, more than 70% of the labour force is in the service sector. Less than 1% of the workforce is engaged in agriculture and 30% in the industry sector (World Bank 2000). Female workers have also made the transition across sectors. During the last two decades, a 15 percentage point fall in the proportion of female workers in the industry sector has been balanced by a nine percentage point rise in female participation in the services sector.

During the period 1993–98, employment in Singapore grew at an average annual rate of 3.27%, rivalled only by China with a rate of 3.04%. Figure 29 shows annual employment growth rates for selected countries, 1993–98.

**figure 29: employment annual growth rate 1993–98**




source: *World competitiveness yearbook* 2000

In 1998 the Asian financial crisis brought unemployment in Singapore to 4.5%. While moderate in comparison with many other nations, this was a significant reversal of earlier trends in which it had fallen from 13.2% in 1960 to 2% in 1996 (Lee Tsau Yuan 1998). Despite Singapore's strong recovery, there is still expected to be a slowdown in some key areas of the economy as a flow-on from problems experienced elsewhere in the region. It is anticipated that up to 15 000 workers will be retrenched annually in coming years, as companies continue to restructure and re-engineer their operations in response to increasing competition.

Patterns of employment have significant implications for the vocational education and training sector. The following table demonstrates the distribution of people employed in key industries in 1998.

**table 24: employment of workforce across industries, 1998**

| Field of occupation | Workforce percentage |
|---|---|
| Manufacturing | 24.4% (down from 27.4% in 1984) |
| Financial and business services | 28.6% (up from 8.6% in 1984) |
| Commerce | 17.4% |
| Transport and communications | 10.4% |
| Construction | 7.4% |
| Other | 11.7% |

source: MTI briefing cited in Green 1999

There is increasing casualisation of the workforce as enterprises outsource some functions in an attempt to limit the number of permanent staff and lower the cost of fixed overheads. The extent of this change is difficult to gauge but the Government Parliamentary Committee on Manpower expects that jobs at the lower end of the skills scale will be threatened and that there will be fewer permanent full-time jobs available in the future. This will inevitably mean greater movement within the labour force and is likely to strengthen demand for highly portable credentials, particularly in VET.

Singapore ranks eleventh on country rankings of availability of skilled labour (*World competitiveness yearbook* 1999). Despite this, there are still some marked skill shortages for technician and graduate level engineers and information technology specialists (Green 1999, p.48). Singapore currently augments its existing labour force by allowing entry to large numbers of immigrant workers, mainly from neighbouring countries, to provide unskilled and semi-skilled labour. Their presence increases the heterogeneity of the society but most arrive without family so this diversity is not equally reflected in the school age population.

## the education system

The view that the wealth of Singapore lies in its people is reflected in the mission statement of the Education Service: 'to mould the future of the nation, by moulding the people who will determine the future of the nation' (MOE 2000). The strong links between education and economic policy and planning in Singapore mean that education receives considerable attention in the press and the public sphere and is seen as a high national priority, accounting for 15% of public spending in 1992 (Gopinathan 1994).

The Singapore education system is highly centralised with the Ministry of Education (MOE) responsible for all public provision of education. This includes education in schools, polytechnics and universities and initial training provided by the Institute of Technical Education.

The school system is made up predominantly of government schools with a small number of private schools. The vast majority of children in Singapore attend government or government-assisted primary and secondary schools. Table 2 illustrates the high proportion of government educational institutions.

**table 25: educational institutions in Singapore (2000)**

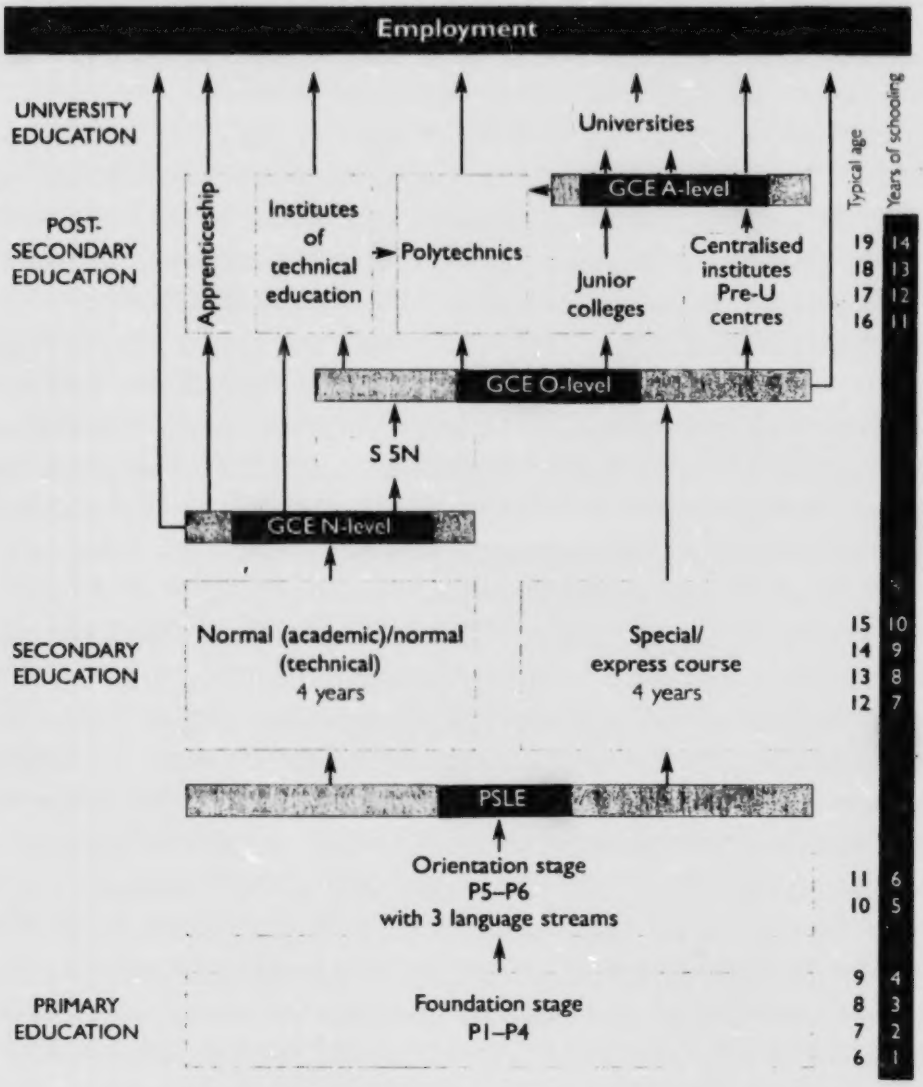
| Type of institution | Primary | Secondary | Full* | Junior college | Centralised institute | Total |
|---|---|---|---|---|---|---|
| Government | 153 | 101 | - | 9 | 2 | 265 |
| Govt aided | 42 | 24 | 1 | 5 | - | 72 |
| Autonomous | - | 15 | 3 | - | - | 18 |
| Independent | - | 8^ | - | - | - | 8 |
| Total | 195 | 148 | 4 | 14 | 2 | 363 |

* Full schools include primary and secondary sessions
^ Only two private academic schools conduct classes which lead to the Singapore–Cambridge General Certificate of Education (GCE)
source: MOE 2000

Children begin six years of primary school at the age of six. The system is highly selective based on a widely held belief in *natural* or *genetic intelligence* (Green 1999, p.65). Streaming of students commences in year four of primary school and the pathways students follow through secondary education to tertiary education or training begin to be established with the Primary School Leaving Examination (PSLE) taken at the end of year 6. This assessment determines the placement of students in one of four secondary school streams. The majority enter a Special (top 10%) or Express course with a Singapore–Cambridge General Certificate of Education (GCE) 'Ordinary' or 'O-level' examination taken at the end of four years. Students deemed less capable take the 'Normal' stream and complete a GCE 'Normal' or 'N-level' examination at the end of four years and, if successful, take the GCE 'O-level' after a fifth year of study.

Following completion of the GCE O-level, students can apply for entry to junior colleges for a two-year pre-university course or to a centralised institute for a three-year pre-university course. Both of these courses lead to the GCE A-level and the pathway to university.

**figure 30: Singapore education system (MOE 2000)**




While the system is based on selective, elitist policies, it maintains an emphasis on quality at all levels and provides, in theory at least, pathways for all students to progress to higher levels, whatever their initial streams. Hence a student who enters a polytechnic following their O-level should have the opportunity to proceed to a university following successful completion of their course.

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The range of responsibilities exercised by the MOE demonstrates a high degree of centralised control. It sets a uniform national curriculum, determines types of assessment to be used in schools, controls enrolment quotas and proportions of students allocated to different streams within schools as well as devises rules for admission into various kinds of schools (Green 1999, p.58). However, according to Wong (in Green 1998, p.59) there is some feeling that the highly regulated curriculum may be limiting 'initiative and diversity', qualities much needed for further economic growth. Recently, the government has sought to address this by granting a degree of autonomy over curriculum matters to some secondary schools.

As in Japan, schooling is highly competitive and is commonly augmented by many hours of tutoring for students at both primary and secondary levels. This has given rise to a vast and largely unregulated market in tutoring services. The marketplace reflects the pressure on students from an early age, with organisations promising parents a competitive edge through IT playgroups for toddlers and 'young genius' computer classes for four to six-year-olds.

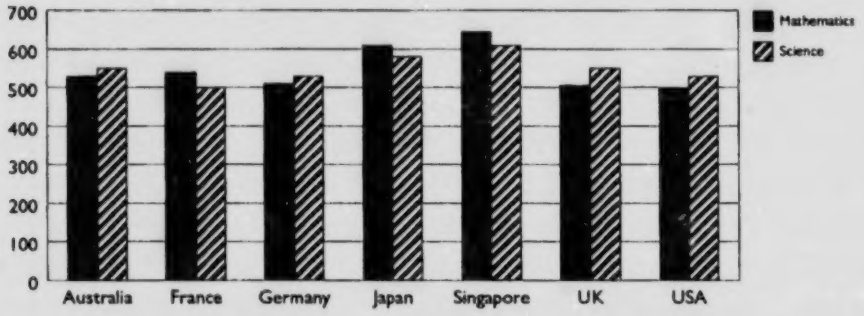
Although education is not compulsory, government policy states that all children should receive at least ten years of schooling. Singapore has been very successful in these goals, achieving very high retention rates. In fact, by 1986, only 1% of students left school with less than ten years of schooling (Wong 1988 in Green 1999, p.59). By 1997, the youth (15–24 years) illiteracy rate had been reduced to 1% for males and zero for females. Within the Asian Region, this was exceeded only by Japan and equalled by Hong Kong (WDI 1999). By comparison, the rates for China and Mexico indicate higher youth illiteracy and greater variability between males and females. In China young females are four times as likely to be illiterate than young males (WDI 1999).

The Singapore education system has been very successful in providing foundation skills and knowledge in mathematics and science. Figure 31 shows the top level ranking of achievement in maths and science of 8th grade students from Singapore in 1995.

In early 2000 the government established a three million dollar (US) Mathematical Sciences Institute at the National University of Singapore in order to demonstrate the importance of mathematics in a knowledge-based economy and its capacity to 'add value to the economy'. At the same time, the government is striving to attract more students to the sciences by inviting high profile scientists from around the world, including Nobel Prize winners, to visit schools, give

public lectures and meet students in order to inspire them to enter the field. In the Asia Pacific region, Singapore is now seeking to position itself as a key player in the information technology sector (TOI 2000, p.16).

**figure 31: average achievement of students, 8th grade, maths and science, 1995**




source: *World competitiveness yearbook*, 1999.

## vocational education and training

To understand vocational and technical education in Singapore, it is vital to recognise the impact of its integrated manpower and economic development strategy (Ashton & Sung 1994; Cheung 1994 in Green 1999, p.56). Decisions about VET are strongly influenced by the Council for Professional and Technical Education which is chaired by the Minister for Trade and Industry and includes the Minister for Education, the leader of the National Trade Union Council and presidents of higher education institutions. There is strong central control over curricula and assessment and a stated emphasis on moral education at all levels of the compulsory sector.

Social and economic life in Singapore has been moulded by the planning and policy making processes designed to deliver economic development. In particular, human resource planning and education and training policy have both been closely shaped by economic objectives. Wong (1992) describes three main phases of human resource planning in Singapore. Firstly, in the period 1959–65 there was an emphasis on reducing unemployment and attaining universal primary schooling before expanding access to secondary schooling (Green 1999, p.54). Industries targetted for development at this time generally did not require sophisticated skills and migrant labour was used to provide these where necessary.

The focus on developing export-oriented industries during the second phase (1965–72), meant an increasing demand for higher level skills. Two government agencies, the Technical Education Department of the Ministry of Education and the National Productivity Centre were established and implemented strategies to meet immediate skills needs. These included supporting training off-shore, encouraging foreign-owned companies to develop in-house training and setting up specialist training schools.

Green (1999, p.55) notes that the third phase of development, from the mid-1970s, was 'characterised by very rapid economic expansion, low unemployment and widespread demand for skills'. Since that time, there has been strong demand for skilled workers as developing countries in the surrounding region, which usually have lower labour costs, compete with Singapore. At this time, the government sought to gain a competitive edge by improving the quality of production and services offered. This required high level skill development and technological mastery, so technical education offered by schools and polytechnics was systematically expanded. VET was also strengthened through the creation of industry and education links. The shift in emphasis to quality in production and higher skilled and technology-based services prompted a change of educational priorities to expanding technical education in schools and polytechnics. The Government instituted measures to stimulate the development of 'longer-term industrial training programs' (Green 1999, p.55). However, there was recognition that older and under-trained workers could be displaced by the shift to higher value-added activities and technological progress (Pang & Low 1994, p.5). A high priority was placed on the development of adult workers, particularly those with no post-primary education. In 1980, only 40% of Singapore's workforce had more than six years of schooling, a proportion lower than that of China and Japan.

The Skills Development Fund (SDF) was established in 1979 to provide financial support for enterprises delivering training in targetted high skill areas. Funds were initially derived through a 4% payroll levy for workers earning below S$750 per month. Grants were provided to employers to conduct in-house training, send workers to approved courses delivered by public and private sector providers and to invest in technological infrastructure and training. The government also established the Council for Professional and Technical Education (CPTE) under the Ministry of Trade and Industry to co-ordinate 'education and manpower development' (Pang & Low 1994, p.6). During the period 1983–1990, a number of special worker training schemes were developed (BEST; WISE; MOST; COSEC; TIME and FAST FORWARD). These training programs provided

primary and secondary education, six-month modular courses in job-related skills, core skills training for service workers, training outside normal working hours and flexible delivery. An additional scheme (INTRO) encouraged expansion and sharing of employer-based training resources.

In the early 1990's there was a restructure of training. The Vocational and Industrial Training Board (VITB) introduced a new apprenticeship system modelled on the German Dual System to create entry-level skills training for school leavers not proceeding to tertiary or post-secondary institutions (Pillay 1992). The VITB was transformed into the Institute of Technical Education (ITE) and the Economic Development Board was replaced by the National Productivity Board (NPB) with responsibility for the SDF. This strengthened the connection between the training programs of the SDF and the productivity programs of the NPD. The resultant post-compulsory education system has a strong emphasis on the development of entry-level occupational skills.

In the absence of a system of life-time employment, Singapore has needed to develop a coherent system of portable national qualifications. Hence the school based O- and A-level qualifications, diplomas from polytechnics and certificates from the ITE have been linked to national standards and provide for entry to and movement between jobs. The nationally recognised qualifications cover a range of levels within a qualifications framework and modularised curriculum provides for the assessment and certification of skills at the module or unit of competency level (Alto et al. 2000).

Transitions to the workforce are made within the context of detailed planning of human resource needs and quotas for courses. The improvement in quality of the vocational training system is encouraged by national participation in the ASEAN regional Skills Training Olympiad and conducting national training skills competitions.

## initial vocational education and training

The government system of training (including ITE, junior colleges and polytechnics) annually takes nearly 90% of school leavers. Quotas determine that 65% should receive vocational training: about 25% at the 'skills level' within the ITE and the remaining 40% at the 'technician level' by polytechnics. The 10% not included in institutional pre-employment training are targetted for initial training within enterprises.

The Council on Professional and Technical Education (CPTE) has set the following targets for school leaver progression in 2000.

**table 26: targets for school leaver progression in 2000**

| Institutions | Intake | Enrolment |
|---|---|---|
| Junior colleges (80% go on to universities) | 10 000 (25%) | 20 000 |
| Polytechnics | 16 000 (40%) | 48 000 |
| ITE | 10 000 (25%) | 16 000 |
| *Total institutional* | *36 000* | *84 000* |
| Remainder of school leavers | 4 000 (10%) | |
| Total of school leavers | 40 000 | |

source: Pillay 1996, p.13

The main national agencies responsible for school leaver training are the CPTE, the ITE and the four polytechnics. The ITE is the national authority for skills training and it establishes national skills standards and awards certification, administers the apprenticeship system, and conducts full-time training for school leavers. There are 12 training advisory committees (TACs), one for each training sector. While government recurrent expenditure on all education doubled across the decade 1988/89 to 1998/99, expenditure on training in polytechnics has more than tripled.

The ITE runs ten training institutes which offer full-time institutional training for school leavers. It provides two- to three-year courses leading to the NTC2 award and the Industrial Technician Certificate. Following completion, supplementary on-the-job training produces a skilled worker.

Table 27 shows intake, enrolments and graduates of post-compulsory education and training institutions in Singapore for 1998.

**table 27: intake, enrolment and graduates of post-compulsory education and training institutions 1998**

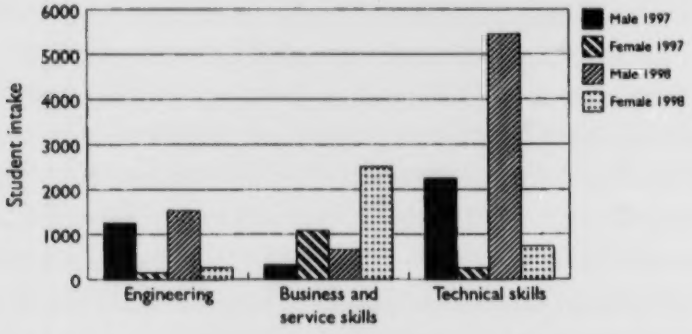
| Institution | Intake | Enrolment | Graduates |
|---|---|---|---|
| ITE | 11 137 | 13 808 | 5 414 |
| Polytechnics | 17 173 | 48 734 | 12 807 |
| University | 9 760 | 32 109 | 9 331 |

source MOE 1999

From 1997 to 1998, there was a sharp rise in the ITE intake which more than doubled. Twice as many new male students enrolled and almost two and a half

times as many females. In particular, as shown in figure 32, this rise was most dramatic for female students in the technical skills fields where three times as many female students commenced as in the previous year. The male 1998 intake into technical skills fields was 2.4 times that of 1997. The rise in new female enrolments in business services (factor of 2.3) and engineering (factor of 1.8) was also greater than that for males. However, male students still dominated the technical skills and engineering fields while female students made up the majority in business and service skills courses.

**figure 32: student intake into ITE courses, 1997 and 1998**




source: MOE 1999

The intakes into polytechnic courses showed less variation between 1997 and 1998. There was an increase in new enrolments into computer/information technology and decreases for engineering and sciences fields. This reflects the trend in job offers as reported by the Singapore Economic Development Board with electronics the lead 'cluster' of occupations and responsible for 34% of the job offers in 1999. By comparison, the engineering cluster reported only 3% of job offers (EDB annual report 1999).

The total enrolment of almost 50 000 full-time students into polytechnics in 1998 was mainly focussed on Electrical Engineering (26%); Accountancy/Business (22%); Mechanical and Manufacturing (19%) and Computer/Information Technology (10%) (MOE 1999).

Apprenticeships are available as an alternative to full-time training. The apprenticeship system in Singapore was revised in 1990. The resultant New Apprenticeship System (NAS) was modelled on the German Dual System and introduced:

- emphasis on the quality of industry trainers
- continuing general education for apprentices
- higher skills development fund (SDF) subsidies for employers (SEAMEO 1994, p.5)

Increased emphasis has been placed on the technical and pedagogical competence of industry trainers. Higher SDF subsidies were designed to address the main barrier to success of the system by offering higher allowances to attract more school leavers to take up New Apprenticeships. Apprentices with lower than GCE N-level qualifications were required to attend academic upgrading courses assisted by employer sponsorship in order to make them more adaptable and to improve the outcomes of training.

Varying patterns of training are possible under the NAS, with some apprentices undertaking off-the-job training one day per week and others 3–6 months full-time (SEAMEO 1994). Off-the-job training is conducted at ITEs or ITE-approved training centres. Approved training centre (ATC) status is granted to industry centres or enterprises for particular courses. The Council on Apprenticeship Training oversees and promotes the apprenticeship system. Programs are modularised and typically consist of four modules, with each module representing between 90 and 120 hours of training.

## continuing vocational training

The Singapore government has promoted retraining through the use of tax incentives for both employers and workers. Employers were also offered lower levies on importation of skilled foreign workers in return for investment in training of existing workers. The SDF required employers to share the costs of training for their workers. Rates of subsidy varied according to perceived usefulness of the courses but in some cases was as high as 70%.

The system currently targets 25% of the workforce annually for worker and company-based training. It aims to provide some training for each worker over a four year cycle. The ITE offers off-the-job continuing training for workers as well as basic education and continuing education for the workforce. It also conducts public trade tests and promotes and supports industry-based training centres and on-the-job training (Pillay 1996). The Advisory Council of Continuing Education and Training (ACCET), a tripartite council, oversees the implementation of continuing education and training programs. ITE campuses offer part-time and weekend skill courses for workers, but accessibility is a concern.

The latest of the government's training initiatives, Critical Enabling Skills Training (CREST), was launched in 1999 by the Singapore Productivity and Standards Board to develop 'premium gold-collar workers to meet the challenges of the knowledge economy' (SPSB 1998). This national modularised workplace training program is to be delivered by a network of endorsed providers. It aims to develop intellectual capital in order to transform the workforce into one 'capable of constantly learning and thinking in the emerging knowledge economy'. The following seven generic core skills form the basis of the program:

- learning to learn
- literacy
- listening and oral communication
- problem solving and creativity
- personal effectiveness
- group effectiveness
- organisational effectiveness and leadership

Interestingly, Singapore has once again turned to other countries in initially identifying the skills its workforce needs. The generic skills have 'been identified and endorsed by many countries including Britain, Canada, Japan and the United States' (SPSB 1998, p.6). According to the Singapore Productivity and Standards Board, they are 'drawn from research conducted in the US and elsewhere and have been modified for the Singaporean context after field testing'. Skills Development Funds have been committed to enable the SPSB to achieve its goal to train half the workforce of Singapore by 2002 (SPSB 1998).

## directions and issues

Singapore's 'Industry 21' statement of goals confirms directions previously taken by the government: 'To develop Singapore into a knowledge-based economy (KBE), we must continue to invest in our people, strengthen our capabilities and develop knowledge-driven industries.'

In 1999, the National Trades Union Congress presented a proposal to government to fund worker retraining. Under its terms, both employers and workers would pay part of their monthly contributions to the Central Provident Fund into a Skillsave account set up expressly for the purpose of funding worker retraining. This is seen as giving workers opportunities for upgrading of skills

without employers having to bear additional costs. Upskilling is seen as vital for older workers who are more vulnerable to retrenchment.

As a highly westernised society dependent on external markets and with a short history as a nation, there has been a tendency to rely on foreign expertise. Green says that in the period from 1965 to 1972, 'the government drew on foreign ideas and expertise to generate rapid response to immediate skills needs'. They did this by providing financial support for large numbers of workers to be sent abroad for training and by encouraging foreign companies to set up apprenticeship schemes and training schools (Green 1999, p.55).

Since the mid-1970s the government has aimed to encourage higher levels of university enrolment and some of the demand is met through the practice of 'buying in' existing post-secondary and post-graduate courses from foreign institutions. Particularly at the higher education level, the doors have been opened to the West, so Australian, American and British universities, usually twinned with Singaporean institutions, compete fiercely for students. Although customised courses have been developed to suit the Singaporean context, newspapers abound with advertisements placed by foreign education providers offering courses both in Singapore and abroad. Overseas institutions are viewed by many as high status providers. This external orientation could be interpreted simply as a consequence of the fact that more than 50% of Singaporeans are employed by foreign companies and perhaps perceive foreign qualifications as more relevant to their careers. Alternatively, it may reflect a colonial heritage of 'cultural cringe' when it comes to education. Whatever the explanation, it also echoes the absence of large Singaporean companies and could suggest that there is insufficient faith in the quality of the home grown product.

As in many other countries, VET is often viewed as the poor relation. In contrast to the strong focus on higher education, there is little evidence in the media of its existence. Another significant change currently underway in Singapore's VET system is the development by SPBS of a national system of recognition to ensure consistency and portability of qualifications while providing pathways for ongoing learning.

The Singapore Government, through its agencies, has established a system-wide holistic approach to increasing skills levels. This integrated approach is seen to be essential if the strategies for meeting human and intellectual capital development are to be successful. The Competitiveness Committee has argued that these strategies must range from 'nurturing skills, creativity and talent at all

levels in the workforce to the development of entrepreneurship training (1998, p.85). The fully integrated plan for skills development includes the development of new initiatives in enterprise-based training and reforms in schooling and higher education.

Heavy subsidies by the government for workplace training have supported the high level of average spending by Singapore-based companies of 3.1% of payroll during 1997. The Skills Development Fund is annually funding some form of training for one in three employees (Green 1999). The Skilled Labor Ranking for Singapore has risen from 27th in 1994 to 10th in 1999 (*World competitiveness yearbook* 1999, p.276).

However, despite rapid skills development, Singapore is 'clearly not yet a high skills economy in the same way as Germany or Japan' (Green 1999 unpublished). There is a shortage of research and development personnel in the manufacturing sector and the difficulty of upgrading low skilled workers remains. There are not enough professionals with the necessary capabilities and experience to be innovative, creative and entrepreneurial within the service sector, also the largest and fastest growing sector.

One of the key issues for future human resource development in Singapore relates to this last limitation. There is a potential mismatch between the centralised and tightly regulated approach to education which emphasises conformism and its capacity to foster a culture of innovation which produces risk-takers and entrepreneurs. Programs such as CREST and 'Thinking Schools—Learning Nation' aim to transform the ways in which students think and learn. However, both of these programs need to be seen within the constraints of the existing system. Green (1999) reports that Singaporean teachers talk about 'managed creativity' or 'bounded creativity'. The emphasis is on improving problem solving capacity, not on thinking differently or in imaginative ways. As more of Singapore's multi-national company (MNC) employers expand their training programs for workers, the government's tight control of training outcomes may be loosened.

# the Americas

The large region of the Americas lacks either the formal integration of most of Europe or the rapid economic advance and integration that East Asia experienced through the two decades from the mid-1970s. There is a clear division between the mainly English speaking regions of the North American continent and the mainly Latin American areas of the rest of the Americas. The economic strength, high income levels and political stability of the USA and Canada contrast with the failure of any of the Latin American economies to reach an advanced level and their associated problems of wealth distribution, poverty and political volatility. There is also a divergence in the industrial basis of economies.

Nevertheless, as stated bluntly through the Monroe doctrine more than a century ago, the region does have a clear identity, and there are clear relationships between economies, including those of the USA and the Latin American countries. As well, the size of the economy of Brazil rivals or exceeds that of any European country, and the USA has taken strong measures to maintain its stability. Its collapse would have severe ramifications for the whole region.

On the other hand there are marked differences in social, political and economic cultures across the region. The free market approach of the USA, with the relative absence of the state in public utilities, contrasts with more prominent state roles in countries such as Mexico. Yet Latin American countries, notably Chile, have been prominent in embracing neo-liberal approaches to economic management over the past two decades, and collectively there has been a high degree of innovation in economic policy across the region.

Within TVET there has been a considerable degree of variation between North America and the rest of the region. Most Latin American countries have at one time or another applied the Latin American model to TVET. This model typically includes a payroll-based training levy that is used to fund a government administered training sector, similar to TAFE in Australia. This model, which has been poorly regarded by international agencies such as the World Bank, has broken down in a number of countries that have responded with some radical innovations in TVET governance, financing and delivery. Foremost amongst these

has been Chile, but other countries such as Argentina, Brazil, Costa Rica and Peru have also introduced innovative programs.

Our study includes the nations of the USA, Mexico and Chile. These three countries have strong contrasts in their economy, geography and political base. The liberal political, social and economic regime of the USA contrasts with a socialist government that dominated Mexican politics for over seven decades until the very end of the 20th century. Chile, on the other hand, has had a recent and turbulent political experience. The nature of TVET in these three nations is at least partially a reflection of these political cultures, histories and social cultures. The other dominant influence has been the overall nature and strength of their economies.

## Chile

### the economy

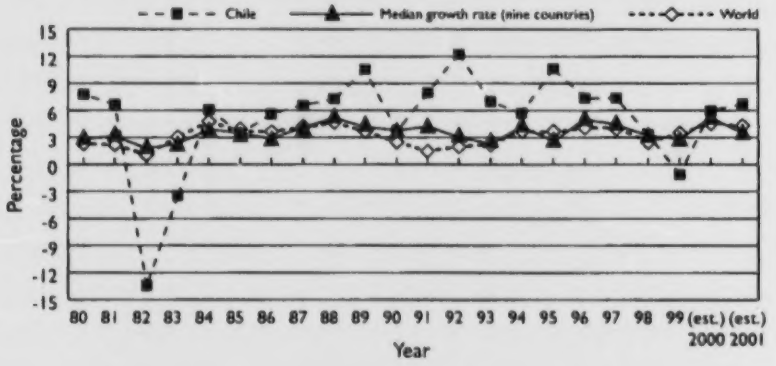
Chile has a relatively small population of 15 million people (with 85% living in urban areas) and with a relatively high income per head of $4612 (US) compared with other Latin American countries (IMF 2000). The Chilean economy displays characteristics of high growth and advancing economies. GDP growth averaged 7.2% per annum between 1990–99. Like most of Latin America, Chile's economy experienced a minor recession at the end of the 1990s, with GDP falling by 1.1% in 1999. GDP growth is estimated at 6% in 2000.

Cox Edwards (1999) notes that 'Chile's performance in improving the most basic labor market indicators and improving poverty is impressive and, unfortunately, rare outside of East Asia' (p.1). The World Bank records the percentage of households in poverty dropping from 45.1% in 1987 to 21% in 1999. Overall levels of unemployment are relatively low by Latin American standards (ILO 1999). Unemployment fell from 10.4% in the early 1980s to 5.3% between 1994 and 1997 (World Bank 2000) and peaked at 11.5% in 1999 (IMF 2000). Real wages increased at an annual rate of 4% over the past decade (IMF 2000).

Annual growth in the service sector of 7.7% from 1990 to 1998 is well above the growth of that sector in the Latin American and Caribbean region of 3.4% (World Bank 2000). Typically, labour market changes are having an uneven impact upon the population with a rise in male employment, but a decline in female employment and the youth labour market. Income distribution, which

historically has been relatively uneven, has been steady over the past decade, but now threatens to increase (Cox Edwards 1999). Amongst Latin American countries, the relative employment costs of low levels of education for Chileans are the highest (EC 1997). The World Bank regards corruption in Chile as the lowest amongst Latin American countries. Despite these characteristics of a developed economy, employment in the informal sector remains at approximately 22.3% (although this is low by Latin American standards, and only Chile and Columbia have declining informal sectors), and domestic service represents 6.3% and small farming 8.4% of the formal employment sector.

**figure 33: GDP growth rates, 1980–2001**




source: IMF, World Economic Outlook Database 2000

**table 28: economic and education indicators**

| | Chile | nine-country median |
|---|---|---|
| Population (1999)[1] | 15.0 m | - |
| GDP per capita ($US) (1999)[2] | $4 612 | $24 715 |
| GDP annual growth rate (1990–99)[1] | 7.2% | 2.7% |
| Unemployment rate (1994–97)[3] | 5.3% | 4.9% |
| Youth unemployment rate 15–19 years (1998)[4] | na | 15.2% |
| Average annual labour force growth rate (1990–99)[1] | 2.4% | 1.2% |
| Public expenditure on education as a % of GNP (1997)[1] | 3.6% | 4.8% |
| Net enrolment ratio – secondary education (1997)[3] | 85.0% | 92.0% |
| School expectancy (1998)*[4] | 14.2 yrs | 16.6 yrs |

* All levels of education combined and education for children under the age of five is excluded.

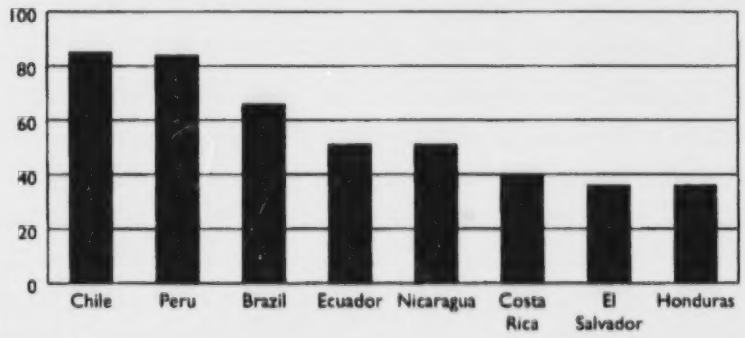
sources: (1) World Development Report 2000/2001; (2) IMF World Economic Outlook Sept. 2000; (3) World Development Indicators 2000; (4) OECD Database

Following the overthrow of the Allende government and the installation of the Pinochet government in 1974, Chile took radical steps towards a market economy. Decentralisation, privatisation and marketisation have been key themes of public policy, including education and training policies. In recent years the radical market-oriented approach has been tempered, and a socialist president was elected in 1999. Nevertheless, these three themes continue to be significant comparative characteristics of education and training in Chile.

## the education system

Overall levels of education in Chile have increased substantially in recent decades. The average time spent in schools increased from 13.1 years in 1990 to 14.8 years in 1998, and the adult illiteracy rate at 4% compares to 12% for Latin America and the Caribbean region overall (World Bank 2000). Chile's net enrolment ratio in secondary education was 85% in 1997, above those of other Latin American countries, as indicated in the following chart:

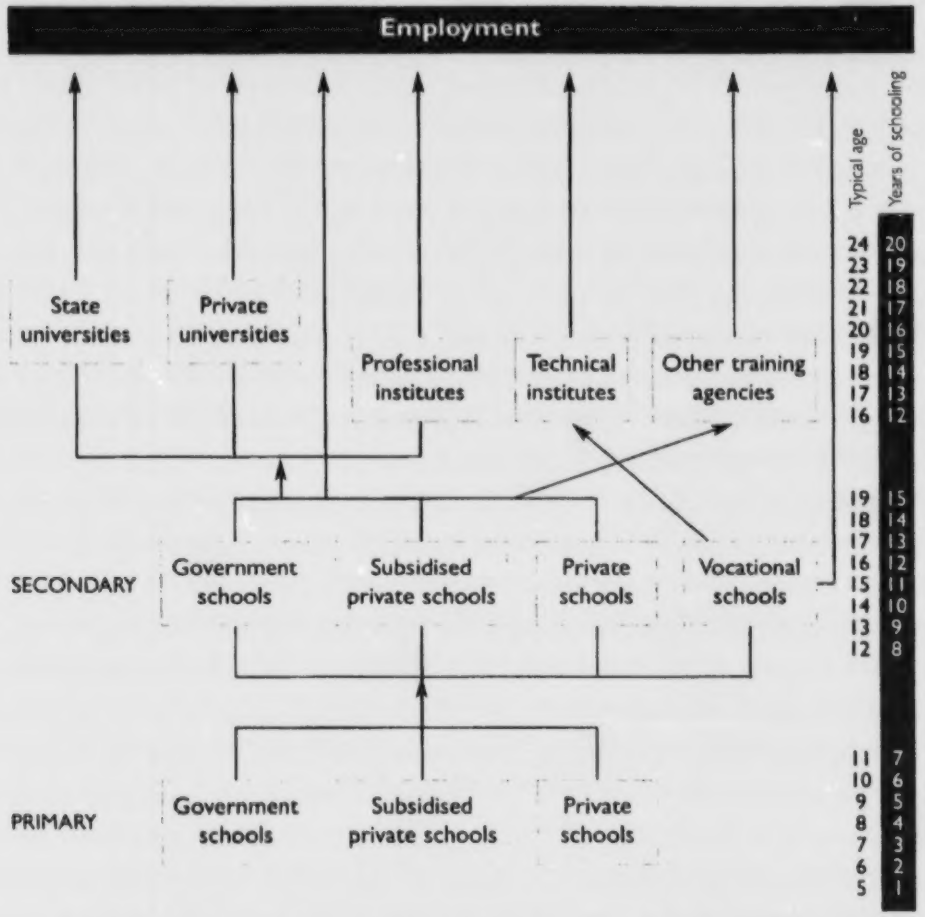
**figure 34: net enrolment ratio—secondary education, 1997**




source: World Bank, Selected World Development Indicators 2000

The education system has been highly decentralised, with management of the public schools transferred to municipal authorities. There are three types of secondary and primary schools: government, subsidised private schools and independent unsubsidised schools. A form of voucher system effectively operates in the school system whereby the government provides subsidies to private schools on a per capita basis, upon the proviso that fees are not charged. Subsidised schools also include vocational schools established or managed by industry organisations. The Ministry of Education supervises the 'system', including the registration of schools and the establishment of the curriculum. The basic structure of the education system is illustrated below.

**figure 35: Chilean education system**




The 'subsidised' system is not without controversy (Carnoy 1998). A large number of the subsidised schools are former government schools that were corporatised, similar to the 'opted out' schools in the UK. These schools and the private schools obtain better results than the municipal schools. There is a tendency for the subsidised and private schools to serve a higher income clientele, however, and those schools that were corporatised tended to be the better performing schools.[33] On the other hand, a centralised system of labour relations was reintroduced to municipal schools in 1991, and this is seen as inhibiting reform (World Bank 1999a).

State investment in education has increased by 20% over the five years to 2000, and the government has postponed a reduction of 1% in the value-added



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tax to finance education reforms. One of the measures is the extension of the school week to 38 hours, a reform that will include the subsidised schools (Ministro de Educacion 1999). Expenditure per student on education in Chile is below the nine-country and OECD-country means:

**table 29: expenditure per student ($US) on public and private institutions by level of education, 1997**

| | Chile | nine-country median* | OECD-country median |
|---|---|---|---|
| Early childhood | $1929 | $3603 (7) | $3463 |
| Primary | 2115 | 3470 (7) | 3851 |
| Lower secondary | 2220 | 3983 (5) | 4791 |
| Upper secondary | 2337 | 5492 (5) | 5790 |
| All secondary | 2292 | 4927 (7) | 5274 |
| Post-secondary non tertiary | na | 8001 (2) | 5337 |
| All tertiary | 8775 | 9390 (7) | 8612 |

* Data for all countries is not available. Figures in brackets indicate how many countries for which data was available.
source: OECD Education Database, table B4.1

Post-secondary education is highly diversified. Public universities have now been complemented with a number of private universities. Professional institutes and technical training centres have also been established. The evolution of these institutions is indicated below:

**table 30: number of post-secondary institutions by funding, 1980–90**

| | 1980 | 1984 | 1986 | 1985 | 1990 |
|---|---|---|---|---|---|
| Universities | | | | | |
| With public funding | 8 | 17 | 20 | 20 | 20 |
| Without public funding | - | 3 | 3 | 6 | 40 |
| Professional institutes | | | | | |
| With public funding | - | 7 | 4 | 4 | 2 |
| Without public funding | - | 18 | 19 | 26 | 80 |
| Technical training institutes | - | 102 | 122 | 123 | 168 |

source: Ministro de Educacion 1999

## vocational education and training

Prior to reforms, the system in Chile was consistent with the Latin American model of TVET. The basic elements of this model are a bifurcated secondary

system with low levels of participation and a public training provider that dominates the training market and is funded through a payroll levy on enterprises. Apart from its capacity to build up a VET infrastructure, the Latin American model is generally seen as inappropriate for a developing economy. The model has been abandoned in Chile.

## initial vocational training

The main thrust of the reforms to IVT in Chile has been to establish a more robust training market. The broad purposes have been to expand the supply of training, diversify financing, increase participation, improve employment outcomes, and make the 'system' more responsive to industry needs. The last of these purposes is also designed to encourage education and training organisations to better serve and participate in continuing vocational education (CVT). There have been a number of initiatives.

Firstly, a large number of vocational schools (159) were transferred to private or corporate management. They continue to be funded by the state, and in some cases at a higher rate than general secondary schools, but under the stipulation that they should be oriented towards labour market needs. Schools can also charge 'voluntary' fees, and funds collected this way are discounted against the subsidies at a rate of 40%. The costs of vocational schools are significantly higher than for general secondary schools, as indicated below:

**table 31: total costs of secondary graduates, 1993, $US**

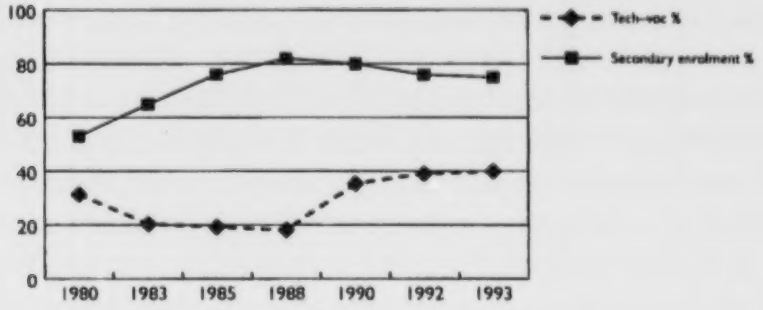
| School type | Municipal | Subsidised |
|---|---|---|
| General secondary | 1 697 | 16 431 |
| Vocational | 2 573 | 2 465 |

source: Cox Edwards 1999

In some cases, schools were taken over by company foundations. Two examples are the Fundacion Educational Arauco set up by a cellulose company, which took over a number of schools in the southern region, and the CODESSER agricultural schools. In the latter case outcomes have apparently been impressive (see Cox Edwards 1999). The CODESSER schools are run by a farmers' foundation and gain 50% of their funds from sources other than government subsidies.

Overall enrolments in secondary education peaked in 1988, but technical enrolments as a percentage of these enrolments have increased, as indicated below.

**figure 36: secondary enrolments and tech-vocational enrolments as a percentage of enrolments, 1980–93**




source: Cox Edwards 1999

Secondly, the monopoly of the eight state universities was broken in the 1980s, and a number of private universities have entered the field. Professional institutes have been established, and technical training centres now compete with the public training provider that previously dominated the market. These reforms, together with those in the school sector, have furthered the two objectives of diversifying the funding of education and training and expanding enrolments. As indicated in table 30, the diversification of public funding for post-secondary education has been modest. Nevertheless, overall tertiary enrolments have almost trebled from 1980 to 1993. Most enrolments do not have direct public funding.

Thirdly, the government abolished the payroll levy, which had previously been used to fund INACAP (Instituto Nacional de Capacitation Professional) and its 28 regional centres.[34] This was replaced with a tax incentive scheme, designed to encourage industry investment in training. Tax rebates up to 1% of payroll can be used for a variety of training activities, including services provided by the more than 2000 private training agencies. These agencies include the private universities and professional institutes, vocational and technical schools, training centres, non-profit organisations (including industry associations), technical suppliers and consultancy firms. They sell services to private enterprises and government-sponsored training programs (Ducci 1997b). INACAP has now become self-financing.

Fourthly, these efforts to expand the private training market have been incorporated into government sponsored training programs. The Chilean Government has supported a training program for unemployed youth, Chile Joven.

This program was established in 1990 and was extended for another four years in 1995. It consists of short-term training in basic skills and apprenticeship programs. As with other elements of education and training, the program is decentralised and is provided by non-government training agencies through a bidding process. The program appears to have been successful, with participation levels exceeding targets and reasonably good employment outcomes. It has also provided the model for similar programs in other Latin American countries.

Fifthly, the private sector has been brought into the administration of the VET system. The government has also established the SENCE (National Skills Training and Employment Service), an agency that is independent from the Ministry of Education and accountable to the Ministry of Labour and Social Security. It administers scholarships and skills training for young people and is established as a private non-profit agency. As well, regional committees for education and work (CRET) have been established in conjunction with enterprise associations and municipal authorities. These bodies promote TVET, co-ordinate the activities of other TVET agencies, and pool private and public training resources (Espinoza 1997).

Apart from Chile Joven, the state has supported other forms of IVT. A small apprenticeship system, similar to on-the-job traineeships, has operated for some years. State support is given in the form of wage subsidies that are delivered through tax rebates. The levels of participation are very low (generally below 1000), and the program is really an employment scheme that contributes little to skills formation. Like many other countries, a pilot of the German Dual System has been initiated (Espinoza 1994).

## continuing vocational training

The main state instrument to encourage CVT in Chile has been the introduction of tax rebates to replace the payroll levy. The cost of internal and external training services contracted by an enterprise are deductible from the enterprise tax, up to 1% of payroll. This also covers the wage costs of apprenticeships, up to 60% of the statutory minimum wage. The system is administered by SENCE, which registers the training organisation that can provide the services. Intermediate technical organisations (OTIRs) have been established with industry participation and direction to plan and co-ordinate industry training for affiliated firms. They are non-profit organisations registered with SENCE and financed by their affiliates, whose contributions are tax deductible.

At face value, the tax rebate scheme appears to have been successful. As indicated in table 32, there has been a significant increase in in-company training over a decade and a half. But training hours have increased only moderately, and only a small percentage of enterprises participate in the system. Espinoza noted that 'fewer than 3% of tax-paying enterprises benefited and only one-third of the potential for the fiscal incentive was used in 1960.' (1997, p.5). As well, the system is biased towards large enterprises which previously funded their own training but now gain the windfall of a tax rebate. Smaller enterprises tend to not participate in the scheme. There must be doubts, therefore, about the capacity of the scheme to build a training culture within enterprises, since on the whole those firms that previously did no training have continued this pattern. Another problem is the tendency of the larger enterprises to provide training to high-level rather than low-level personnel, an outcome similar to that of the Australian training guarantee scheme of the 1980s.

**table 32: training programs in enterprises, 1980–94**

| | Enterprises | Trainees (thousands) | Training hours ($ millions) | Training expenditure ($ millions) | Tax rebate ($ millions) |
|---|---|---|---|---|---|
| 1980 | 732 | 97.2 | - | - | 14.81 |
| 1990 | 6 017 | 199.6 | - | 47.24 | 33.83 |
| 1992 | 12 163 | 324.7 | 11.1 | 57.53 | 40.11 |
| 1994 | 13 572 | 433.4 | 14.1 | 79.81 | 56.42 |

source: Espinoza 1997

State intervention in training in developing countries faces significant problems. The traditional Latin American model, apart from its inefficiencies, also tended to favour the larger enterprises, which are more inclined to use public training facilities. Schemes designed to induce enterprises to undertake training will mostly favour large enterprises due to the duality of technological and labour market structures. Large enterprises will mostly be more export oriented, utilise technology, employ more highly trained workers, and have higher rates of pay than small enterprises. All of these factors are recognised internationally as associated with a higher propensity to train. This is exacerbated by the growth of informal sectors. Intervention schemes face the problem of exacerbating the greater propensity to train of larger enterprises because of the tendency of smaller enterprises to avoid government, as well as the irrelevance of government intervention to the barriers to training in small firms: high labour turnover, small capital base, low skills and technology operations (Keating 1999).

There is also a number of government-supported schemes for CVT. The SENCE issues vocational training grants to unemployed, underemployed, independent and small firms' adult workers. This scheme has some similarities to the 'training credits' issued by the TECs in the UK, but with an orientation to CVT. Workers are selected for the scheme according to a range of criteria, and training is delivered by the private training agencies through a bidding process.

The SENCE finances and supervises retraining programs for adult workers. These programs are provided by the private agencies through a public bidding process. Together with the National Women's Service, the SENCE manages training programs for low-income female workers. This is also provided by the private training agencies through a bidding process. This program of Educacion y Trabajo (education and work) appears to have had good results (Bosch 1998).

## directions and issues

The EC (1997) has noted that overall standards of education in Latin America are poor, providing a poor foundation for skills formation. This appears to be the basis for the recent reform measures in Chile that concentrate upon general education. The extension of the school week to 38 hours is probably modelled on the long school days in some European countries, such as Germany and some of the French programs.

At the upper secondary level, however, levels of participation fall far short of those of OECD countries. Expansion has been built largely upon private investment, although state investment has been used to strengthen the vocational programs. It may be difficult to extract further investment from both of these sources. On the other hand, the approach taken in vocational programs of forming linkages with and encouraging the participation of industry, and in some cases of facilitating work-based learning, is consistent with European views about the value of alternance, and with views of organisations like the ASTF in Australia about the value of workplace learning.

The main problems faced by Chile in IVT are those of expansion and equity. The reliance upon private investment, while 'voluntary', has its limits, and is likely to exacerbate inequities in quality. This is ostensibly the case with secondary education where subsidised schools, which have a greater capacity to generate funds, are more concentrated in higher income areas. These schools, on the whole, achieve better results, and a number of authors have observed the growth in inequality as a result of the neo-liberal measures (Carnoy 1998; Avalos 1996; Schiefelbein 1991).

As Espinoza (1997) has noted, the success of the Chilean experiment has been at least partially dependent on economic growth. Such growth has been sustained, and impressive within the Latin American context, for two decades. When Chile did suffer a recession in 1982, the growth in both IVT and CVT faltered (Robbins 1999). It can be argued that a traditional role of state intervention has been to attempt to compensate for the impact of economic cycles. The privatised and market-oriented Chilean system is thus more vulnerable to economic cycles.

It can also be argued that the state has a strategic role in TVET in providing greater access to disadvantaged groups, promoting training in key industry and technological areas, and in ensuring coherence and correspondence. The Chilean government has supplemented the market-oriented elements of TVET with targetted training schemes for youth, unemployed and women. Indeed it has been a regional leader in this area. On the other hand, CVT has been oriented towards the service sector (ILO 1999) with a low investment in high technology fields. Furthermore, there have been poor results at the operative levels of the workforce and amongst small firms. The coherence of the CVT system is also questionable, as there is a tendency for enterprises to 'direct' or 'select' training for their own needs rather than those of the industry and the workforce. These problems are less severe in IVT where the SENCE has a stronger supervisory role, and the state provides higher subsidies for the more technologically based studies.

The Chilean approach to VET has been a radical experiment. It is probably the case that many of the current weaknesses were as great or greater under the former Latin American model. This certainly appears to be the case amongst those countries that are still attached to the model.[35] It also needs to be recognised that the capacity for a more demand-oriented provision has been increased, and that the quality of training provision, including that of the INACAP (Instituto Nacional de Capacitation Professional), has improved. It is possible that the better performance of vocational, as against general secondary education, graduates in the labour market is an indication of this quality (World Bank 1999b). The main criticisms of the neo-liberal approach, those of greater inequality and a reduction in public investment, probably apply in an empirical sense to the primary and secondary education systems.

The impact of global forces upon VET in Chile is difficult to predict. The labour market is already highly deregulated, and the industrial structure is remarkably service sector oriented, given the economy's relative performance. A

growth in income inequality is likely to create greater pressure for inequality in both CVT and IVT, and the consequences of a decline in economic growth are likely to be similar.

Chile provides a rich case study in the role of the state in a marketised and decentralised VET system, themes that have been prominent in Australian training reform. Chile has been the theatre for experiments in the two controversial areas of 'vouchers' and a 'privatised training market'. But it is the role of the state in VET, in the context of a growing economy facing the challenges of attempting to move towards an advanced level and the new rules of globalism, that is of greatest interest. Having travelled further down the marketised road in VET than perhaps any other country, Chile now has to turn and recognise the role of the state. As an ILO official (Ducci 1997) put it to a SENCE-hosted forum, 'the evolution of human resources training and development systems will depend on a redefinition of the role of the state and that of private sectors and above all, on efficient, effective and dynamic co-ordination between them.' (p.13)

## Mexico

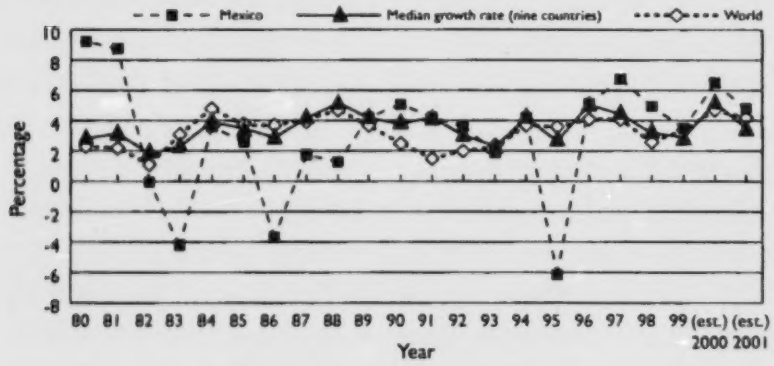
### the economy

Mexico has a population of 97.4 million, the second largest in Latin America after Brazil. Its GDP per head of $4748 (US) is moderate compared with other leading Latin American countries (IMF 2000). It can be described as a middle-level economy with a relatively strong manufacturing sector, providing 90% of export earnings but largely oriented towards its northern neighbour, the USA. Despite official unemployment rates of only 3.5% between 1994 and 1997 and youth unemployment of 6.9% in 1998, annual economic growth in the 1990s has been low at 2.7%. The economy also displays duality in the existence of a significant informal sector, and disparities between the manufacturing-oriented and more affluent north, and the poorer agriculturally-oriented south, with attendant social and political unrest.

From the 1960s Mexico had three decades of rapid economic growth, averaging over 7% pa, although this was largely driven by rapid population growth (World Bank 1998).[16] Following a period of economic liberalisation from 1988 to 1994, the economy achieved higher growth rates during the early 1990s. This performance, however, hid structural problems within the economy which culminated in a severe depression represented by a 6.2% fall in GDP in 1995.

Since then less radical policies have resulted in economic recovery and modest growth rates. Economic growth for 2000 is projected at 6.5%.

**figure 37: GDP growth rates, 1980–2001**




source: IMF, World Economic Outlook Database 2000

The economy, however, retains fundamental weaknesses. It is squeezed by its dependence upon the US economy, as indicated by the impact of the US downturn in 1995, and by the Brazilian dominance of the Latin American economies as indicated by a crisis in 1999. It is also vulnerable to oil price fluctuations, and fundamental dualities are symptomatic of other structural weaknesses.

The duality extends to the contrasts between large high capital, export-oriented trans-national manufacturing companies in the north and small low capital and low skills enterprises in Mexico City and some of the other central cities. Typical of Latin American countries, and in marked contrast to the Japanese and to a lesser extent European economies (Porter 1990), there is little relationship between these two sets of enterprises both structurally and in terms of skills transfer or demand (Keating 1999).

Although one World Bank report (1999b) notes that the Mexican workforce is poorly educated with post-15 illiteracy rates of 9.8%, another (1998) concludes that 'the accumulation of human capital, as proxied by education attainment, does not appear to be among the factors responsible for Mexico's disappointing growth performance since the early 1980s, but rather stands out positively in historical and international comparisons.' (p.112). Nevertheless, the goal of human capital formation and social policy designed to reverse growing income disparity related



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to educational attainments have supported an increased social investment in education and training. This has included a number of investments and innovations in TVET, including a recent World Bank supported investment to develop a competency-based system (World Bank 1994c).

**table 33: economic and education indicators**

| | Mexico | nine-country median |
|---|---|---|
| Population (1999)[1] | 97.4 m | - |
| GDP per capita ($US) (1999)[2] | $4 748 | $24 715 |
| GDP annual growth rate (1990–99)[1] | 2.7% | 2.7% |
| Unemployment rate (1994–97)[3] | 3.5% | 4.9% |
| Youth unemployment rate 15–19 years (1998)[4] | 6.9% | 15.2% |
| Average annual labour force growth rate (1990–99)[1] | 2.9% | 1.2% |
| Public expenditure on education as a % of GNP (1997)[1] | 4.9% | 4.8% |
| Net enrolment ratio – secondary education (1997)[3] | 66.0% | 92.0% |
| School expectancy (1998)*[4] | 12.2 yrs | 16.6 yrs |

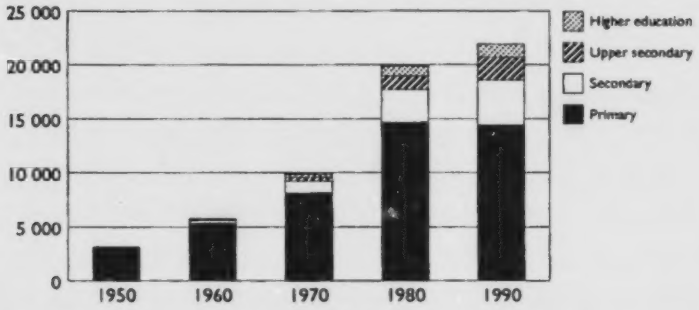
* All levels of education combined and education for children under the age of five is excluded.
sources: (1) World Development Report 2000/2001; (2) IMF World Economic Outlook Sept. 2000; (3) World Development Indicators 2000; (4) OECD Database

Politically, Mexico has been stable since the revolution of 1917. It was dominated by the socialist PRI party until the elections of 2000. Throughout the 20th century the country has maintained a very active political culture that clearly has had an impact upon the education system. Compulsory education has been extended to nine years and there is a heavy emphasis upon humanities and social sciences. There are, for example, a very large number of chairs in anthropology at the state-funded universities, and the investment by the state in education has been substantial. The economic liberalisation period of the 1980s had a limited impact upon the education sector. Its statist character has remained largely intact, and this has been reinforced by the political power of the national teachers union with a membership of well over one million.

## the education system

The rapid growth in all levels of education in Mexico is indicated by figure 38. Typical of most countries in the period up to 1990, investment has been concentrated upon universal primary education and the expansion of an elite higher education track. Investment in TVET has mainly been through the secondary school system.

**figure 38: numbers in education by level, 1950–90**




source: OECD 1996

Expenditure per student on education in Mexico is well below the nine-country and OECD-country medians, and this is likely to have contributed to the lowest net enrolment ratio for secondary education (66%) of all the nine countries.

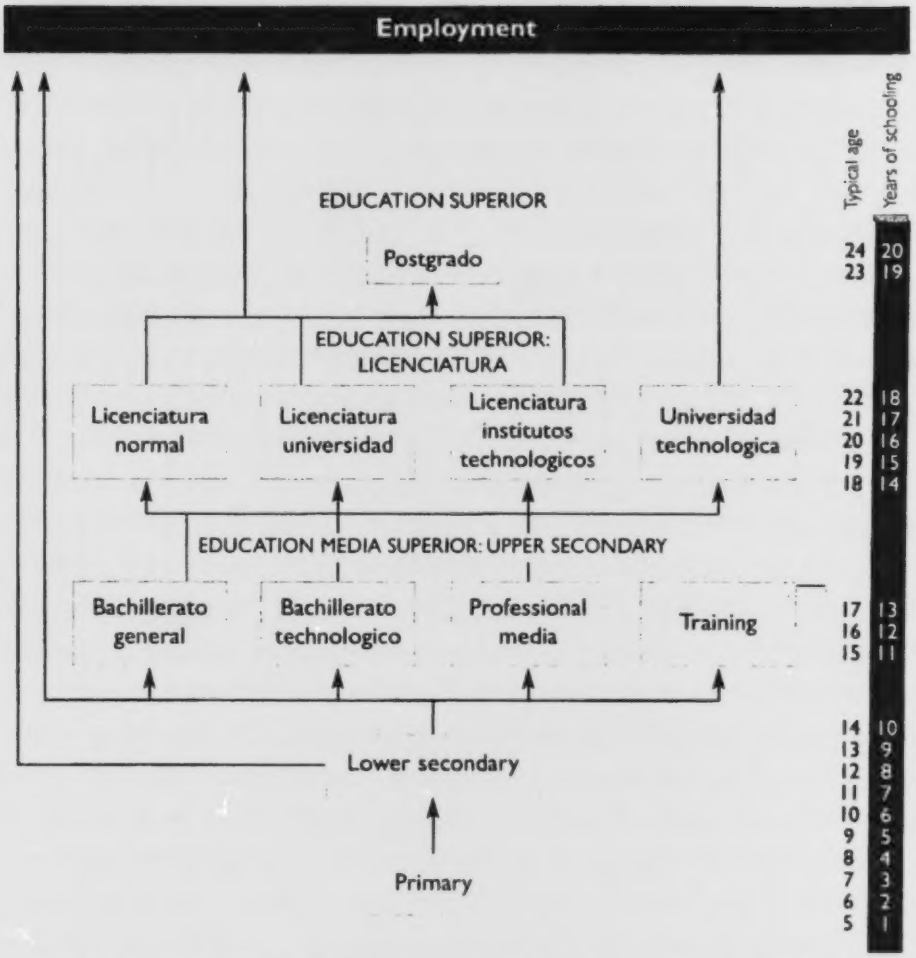
**table 34: expenditure per student ($US) on public and private institutions by level of education, 1997**

| | Mexico | nine-country median* | OECD-country median |
|---|---|---|---|
| Early childhood | $979 | $3603 (7) | $3463 |
| Primary | 935 | 3470 (7) | 3851 |
| Lower secondary | 1443 | 3983 (5) | 4791 |
| Upper secondary | 2320 | 5492 (5) | 5790 |
| All secondary | 1726 | 4927 (7) | 5274 |
| Post-secondary non tertiary | na | 8001 (2) | 5337 |
| All tertiary | 4519 | 9390 (7) | 8612 |

* Data for all countries is not available. Figures in brackets indicate how many countries for which data was available.
source: OECD Education Database, table B4.1

The structure of the Mexican education system is similar to that of the French system, with a common platform of primary and lower secondary education and the division of upper secondary education into general, technological and vocational streams. The system is illustrated in figure 39.

**figure 39: Mexican education system**


Employment
EDUCATION SUPERIOR
Postgrado
EDUCATION SUPERIOR: LICENCIATURA
Licenciatura normal
Licenciatura universidad
Licenciatura institutos technologicos
Universidad technologica
EDUCATION MEDIA SUPERIOR: UPPER SECONDARY
Bachillerato general
Bachillerato technologico
Professional media
Training
Lower secondary
Primary
Typical age
Years of schooling
24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5
20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

At the upper secondary level students enter either a general or a technical high school. Similarities with the French system extend to post-secondary education with different forms of university and technical education and training, including a short cycle *universidad tecnologica*. More recently, as has occurred in France, it has been proposed to allow the terminal vocational upper secondary programs to progress into higher education. Students exiting lower secondary education can also enter short-term training programs.



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There is a range of complexities within the Mexican education system that has an impact upon TVET. Apart from the broad classification of upper secondary courses as general, technical and vocational, schools are divided in their administration as federal, state, private and independent (or autonomous). Further complexity is added through the existence of different authorities at the federal level. This division is repeated at the higher education level, as reflected in the following table.

**table 35: enrolments in upper secondary and higher education by responsible authority, 1992–93**

| | Federal | State | Autonomous | Private |
|---|---|---|---|---|
| Upper secondary | 37% | 22% | 18% | 23% |
| Higher | 17% | 13% | 49% | 21% |

source: OECD 1996

Further fragmentation is added through the practice of universities providing 'recognition' of or affiliation for secondary schools. As would be expected, a higher proportion of private schools is affiliated. The university market, however, is highly differentiated and increasingly privatised. Quality varies within both the public and private sectors, but there is a stronger orientation of the private sector to the labour market. State support for the social sciences within the public universities remains strong.

## initial vocational training

The formal training system in Mexico is dominated by the upper secondary and higher education systems. Responsibility for initial vocational training rests with the Ministry for Education (Secretariate of Public Education—SEP), and the Ministry of Labour has responsibility for some elements of continuing vocational training, including programs for unemployed workers and industry development programs. The bulk of mainstream CVT, however, rests within the SEP administered 'system', as TVET institutions come under its 'ownership'.

The fragmentation of upper secondary and higher education has had an impact upon CVT, and the outline of the formal education and training system in figure 39 can be further broken down for IVT as indicated in figure 40 (see p.141). The various institutions range from those providing technological education to higher degrees, including doctoral degrees, to industry and craft-oriented training, predominantly institutionally based, in a variety of training institutions.

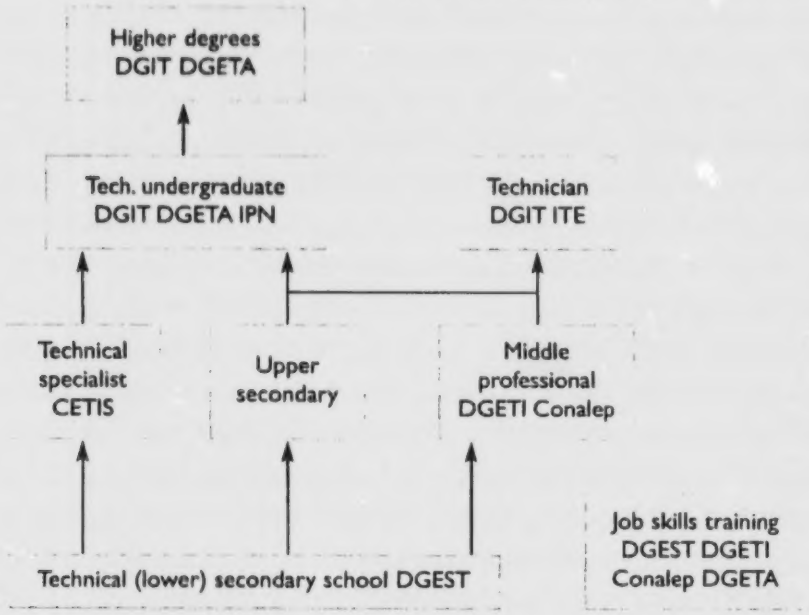
Figure 40 indicates just some of the authorities under the *Sistema Nacional de Educacion Technologica* (SNET) responsible for TVET in Mexico. Authorities have been divided according to the levels of TVET, whether located within the school system or directed towards industrial training, and specialist industry areas. Further complexity has been added by the habit of creating a new authority to administer new elements of the system. So the *Direcion General de Educacion Secundaria Technica* (DGEST) is responsible for TVET at the lower secondary level, as well as for initial jobs skills training. But responsibility for initial jobs skills training is shared with the industry-oriented *Direccion General de Educacion Technologica Industrial* (DGETI), the agricultural and livestock TVET authority *Direccion General de Educacion Technologica Agropecuaria* (DGETA), and the more recently established *Colegio Nacional de Educacion Professional Technica* (CONALEP). At the higher levels, authority is extended to *Centro de Ensenanza Technica Industrial* (CETIS), *Direccion general de Institutis Technologicos* (DGIT), and institutions such as the *Instituto Politechnico Nacional* (IPN) and *Instituto Technologico Estatal* (ITE).

All of these authorities and semi-autonomous institutions, and more, exist as a national system (SNET) under the authority of the SEP. Some initial vocational training is also provided through the institutions of the Labour Secretariat (*Secretaria de Trabajo y Previsiom Social*, STPS) through their 196 CECATIs (*Centros de Capacitacion para el Trabajo Industrial*), and the decentralised ICATES (*Instituto de Capacitacion para el Reabajo Estatal*).

Overall levels of enrolment in vocational education at the upper secondary levels in 1997 were 1 116 025, representing 42.12% of all secondary enrolments. Enrolments in technological institutes and technological universities were 198 500 out of total tertiary enrolments of 1 727 500.

Such a system is typical of the statist traditions of education and public provision in Mexico, as in France, and is symptomatic of a provider-led system. It may be seen as somewhat surprising that Mexico has never really seriously adopted the Latin American model of a payroll-based training levy (which France has used). But this may be explained by the failure to ever introduce an apprenticeship system and the lack of orientation towards industry. It is also explained by the OECD (1996) conclusion that the system is primarily oriented towards successive levels of screening of students for entry into higher education. This also explains the heavily academic orientation of the technical programs.

**figure 40: national system of technological education (SNET) under the Secretariat of Public Education (SEP)**




source: SEP 1998

This OECD criticism is affirmed by others (World Bank 1994c). The system is seen as leading to:

> *(1) poor preparation of workers for vocational/technical education and training*
>
> *(2) supply-driven programs, which lack flexibility and relevance to changing labor market needs*
>
> *(3) uneven quality of training programs, with no objective measures available to gauge the quality of outputs*
>
> *(4) lack of adequate institutional framework for private sector involvement in the design and provision of training*
>
> (Minowa 1998, p.12)

Minowa also implies that the TVET system is partially responsible for the poor levels of labour productivity in Mexico, a factor that appears to be questioned by the World Bank (1998). This system also is typically expensive to run, with significant problems of provider flexibility and quality. One study on the



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newer CONALEP institutions (Land & Miranda 1998) plus some the more established institutions (CETIS) had poor graduate employment outcomes.

Some reform strategies have been introduced by some elements of the SEP, including competency-based approaches. In 1996 the World Bank funded the establishment of a 'Modernization Project' designed to introduce a competency-based approach to TVET in Mexico. The approach was informed by the Australian approach towards CBT, and has led to the establishment of the national authority, CONACER, with responsibility for the development of national industry-based 'norms' (competency standards), and a national system of evaluation (assessment) and certification. The norms are relatively large, with a single norm also being a large element or even the whole of a course, and constituting a qualification in itself. Given the fragmentation of TVET in Mexico, the norms are designed to overlay the multitude of programs and to provide a dual system of qualifications, which hopefully will merge into a single system, at least for some elements of the system. As would be expected, there are tensions between some of the TVET authorities within the SEP and the CONALEP. Such tensions appear to be less within the Labour Secretariat (SNET).

The capacity of this new system to bring greater coherence to TVET in Mexico is still unknown. Sectional resistance is likely to continue, and evaluations have raised doubts about the coherence between the norms, assessment and certification, and institutional practices (World Bank 1998b). The reforms fall a long way short of those in Australia, and certainly Chile. The capacity for industry leadership is limited, as consultants have developed most of the norms, institutional resistance is strong, and there has been little progress in the establishment of a more open training market. Provision of funding from a relatively conservative SEP to enhance a private training market has not been considered. Despite a recent history of liberalisation and privatisation in other spheres, education retains a strong public commitment, and a very strong political culture; an active political and civil society tempers its degree of orientation to economic needs.

The private market for IVT in the formal education system in Mexico is relatively weak. As would be expected, there is a bias within the private elements of the school system towards the academic streams. On the other hand, the private market in elementary vocational training is stronger. This element, however, has the typical problem of quality of standards. These trends are illustrated in the following tables.

**table 36: enrolments in upper secondary education by authority responsible, 1992**

| | Federal | State | Autonomous | Private |
|---|---|---|---|---|
| Upper secondary | 37% | 22% | 18% | 23% |

source: World Bank 1996

**table 37: enrolments in technological and vocational education, 1992**

| | Federal (SNET) (%) | Federal (Other) (%) | States (%) | Independent (%) | Private (%) |
|---|---|---|---|---|---|
| Elementary vocational | 23.8 | 1.8 | 9.7 | - | 64.7 |
| Vocational | 52.3 | 9.4 | 23.5 | 21.5 | 22.6 |
| Technological | 23.0 | 9.4 | 23.5 | 21.5 | 22.6 |

source: World Bank 1996

Jobs skills training, or basic TVET, is carried out in the public sector, mainly through the federally administered training centres, the CECATIs. The bulk of provision, however, is still in private institutions. The CECATI centres were supplemented in 1979 with the establishment of the CONALEP as a semi-autonomous entity within the SEP. Their colleges provide three-year upper secondary, pre-service technical education and vocational training. These institutions have attempted to become more industry-oriented through a stronger emphasis upon hands-on skills, teachers drawn from industry, and a recent decision to decentralise. Their 260 training centres now represent the flagship technical training system in Mexico. Despite this, it does not appear to have good outcomes, with only 38% of enrolments graduating.

The number of students undertaking technological and vocational studies in IVT in Mexico is relatively low, although higher than in Australia and the UK, as indicated in table 38 below.

**table 38: percentage of students in technological and vocational education in Mexico and some OECD countries**

| | General | Technological and vocational |
|---|---|---|
| Mexico | 59 | 42 |
| UK | 80 | 20 |
| Australia | 72 | 28 |
| France | 46 | 54 |
| Germany | 20 | 80 |

source: OECD 1996

These data are misleading, however, as the proportion of TVET students is much lower if students undertaking technological studies in continuing streams are not classified as TVET.

**table 39: number of students in skills training and technical education, 1997**

| | Jobs skills training | Upper middle | Technological high school |
|---|---|---|---|
| Public – SEP | 1 251 999 | 197 721 | 667 965 |
| Other (including states) | 8 844 | 41 476 | 1 134 430 |
| Private | 373 601 | 92 803 | 419 944 |

source: SEP 1998

The percentages of young people in IVT labour market-oriented courses in Mexico, therefore, are very low. Private providers dominate the market, and their enrolments probably include a large percentage of adults. Private schools have a relatively weak presence in middle level vocational education and in the technological high schools. It would appear that once TVET moves towards more theoretical learning, private providers drop away and concentrate upon either vocational training or mainstream academic studies.

There is no substantial tradition of apprenticeships in Mexico. Within the discussions about TVET reform there has been some discussion of the establishment of an apprenticeship system. But this seems unlikely to occur in such an educational provider-dominated system. The Labour Secretariat has a more flexible approach towards TVET than the SEP. But its limited budget options have confined it to programs for unemployed workers and enterprise development. A number of the courses under the SEP involve 'field work'. Even this appears to be a more limited concept than the French idea of alternance. To a large extent the norms-based approach that is being developed ignores the concepts of work-based learning.

## continuing vocational training

As indicated above, the education ministry (SEP) rather than the Labour Secretariat (STPS) is the responsible authority for most formal/provider-based CVT in Mexico. Most of this training is provided by the training centres and the decentralised training centres. It would seem that industry demand for training from the public training providers is very low, with a total of less than 200 000 trainees in 1996–97. The number of trainees serviced in the workplace by the public training providers is even lower, with a figure below 40 000 (SEP 1998). It is likely that

demand from industry for private training services is much higher. Official figures are not available for this demand, but estimates can be gathered from the national survey of wages technology and education.

Public training providers also service the training program for unemployed workers, *Programa de Becas para Trabajadores Desempleados* (PROBECAT). In 1996–97 over 150 000 trainees were supported. The program emerged from the 1982 economic crisis as a means of protecting displaced and unemployed workers. It provides a stipend and retraining for workers of between one and six months. The program has attracted a lot of attention, but its value is unclear. Its net benefits for men are poor in the short term, but strong in the long term. But its net benefits for women are negative in the short and long terms.

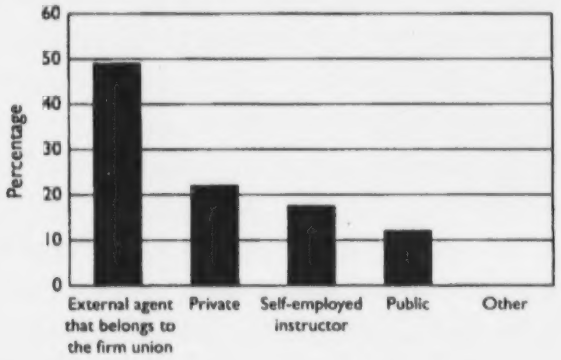
The weak demand from industry for services from the public training system has helped to precipitate the modernisation program, of which industry-based competency standards are the centrepiece. The only other elements of the reforms are various attempts to decentralise training providers. It seems doubtful if these two sets of reforms will be sufficient to stimulate public demand. Private training providers typically concentrate in office and information technology areas, and there is no real attempt to come to grips with the concept of a private training market. The norms-based system will provide the capacity for private providers to gain public endorsement and qualifications. But it seems doubtful that this will be sufficient to strengthen private supply.

One program that is essentially located in the private market is the CIMO (*Programa de Calidad Integral y Modernizacion*). This program has been designed to support small business through the provision of advisory and training services, as well as small loans. Training services are provided mainly through a network of training consultants, and the bulk of the training is provided on the job and is customised for the firm and the enterprise developmental plans. The program has attracted a good deal of international interest, and appears to have good outcomes. The program is oriented towards small enterprises, and it links training with enterprise development. One positive outcome has been the development of a network of training consultants who are oriented towards enterprise-specific and needs-based training. It does not appear, however, that the program is available to the non-formal sector.

It would appear that there is a low incidence of firm-based training in Mexico. Only 15.8% of manufacturing firms provided training to workers in 1994 (Encusta Nacional de Empleo, Salarios, Tecnologia y Educacion, 1994). The low use of public providers is indicated in figure 41. The high use of external union

agents is of interest, and suggests that much of the enterprise-based training is worker-initiated. As would be expected, there is a greater tendency for large enterprises to provide CVT than smaller enterprises. There is also a greater tendency for men to gain training than women (54.2% compared with 45.8%), and training is most concentrated upon the 25–34 year age group. Also consistent with most other countries is the incidence of training which is higher for more educated workers.

**figure 41: main types of external agents providing training**




source: Encusta Nacional de Empleo, Salarios, Tecnologia y Educacion 1994; 1997.

## directions and issues

Mexico has invested a considerable amount of hope in the development of norms (competency)-based training. This hope is based upon the assumption that such a system will help to reform supply-side orientation and its attendant problems of industry irrelevance, poor quality and low efficiency. It also is assumed that the norms will provide a framework for a private training market and for the recognition of industry-based training.

These hopes seem ambitious. The norms are broadly based, have avoided problems of atomisation and reductionism, and probably have learnt from the Australian experiences by allowing scope for curriculum variation. This development, however, has not been accompanied by any attempts to stimulate demand for training or incentives for private training providers. State funds will continue to be channelled into the competing SEP agencies. Mexico has avoided the Latin American models of payroll taxes and levies. But its statist alternative tends to ignore the demand side, and its assumption that the norms-based system can establish the missing link between supply and demand is difficult to understand.

The investment in CBT was initially oriented towards the British NVQs and to a lesser extent Canadian approaches. Its more recent conversion to the Australian model appears to be appropriate. Broadly described norms, similar to but even broader than Australian training packages, allow the norms to transcend the different courses with the same industry areas within the myriad of different agencies of the SEP and the Labour Secretariat. They also have the potential to cover courses within the private market. The CONACER is also establishing a system of assessment that appears to borrow from the Australian recognition framework. Certification agencies will be registered with the CONACER, and organisations or individuals can be registered as 'evaluators' (assessors) with these agencies. This will allow courses to gain dual certification: that of the host agency (e.g. Conalep, DGETI, etc.) as well as national CONACER recognition. It also will allow workers to gain CONACER recognition outside of accredited courses through the evaluators and assessment agencies.

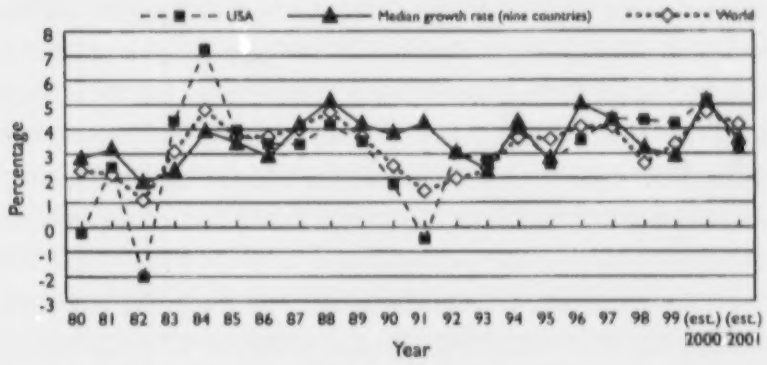
The approach has obvious merit, but it raises the question of why provider bodies and schools, enterprises and individuals will invest in such a system. Provider resistance is apparent, with some agencies refusing to participate in pilots. The potential currency of CONACER recognition is unknown. The capacity of the system to stimulate demand and encourage private provision is assumed rather than modelled.

The Mexican example indicates the limitations in adopting solutions from other countries. It also shows the need to consider all aspects of TVET: both IVT and CVT, and the relationship between demand and supply. The Mexican reforms are an attempt to reform the provider-based system through an industry-oriented competencies and recognition framework. This is a worthwhile endeavour. But as the OECD mission (1996) has pointed out and is the case in a number of countries, TVET has historically been a residual aspect and the filtered outcomes of a selective academic system. Consequently its demand orientation has been essentially hierarchical rather than competency- or skills-based, and this is reinforced by a labour market that is not occupationally based. Attempts to strengthen the skills orientation of TVET, therefore, are unlikely to lead towards a stimulation of demand, especially in the absence of other demand-oriented interventions. The existence of a significant informal sector and the growth of small enterprises only add to the doubts about the effectiveness of these 'imported' reforms.[37]

## the economy

The USA has experienced a sustained period of economic growth of above 4% since 1997, and growth is projected at 5.2% for 2000. The results have been low levels of unemployment (4.9% for the 1994–97 period) and a high level of international competitiveness.

**figure 42: GDP growth rates, 1980–2001**




source: IMF, World Economic Outlook Database 2000

Economic change is evident in the USA with a rapid increase of employment in the services industry. In 1945, the services industry accounted for 10% of non-farm employment compared with 38% for manufacturing. The US Bureau of Labor Statistics projects that the service-producing sector will create virtually all of the new jobs between 1996 and 2006 (Franklin 2000).

Furthermore, estimates suggest that more than half of the new jobs created during this period will require some education beyond high school, and one-third will require a bachelor's degree or more (Johnston & Packer 1987). The ten occupations with the highest projected growth rates have high education and training requirements (eight require bachelor's degrees or moderate to long-term on-the-job training). These jobs will demand greater critical thinking skills, an ability to take personal responsibility for work and, certainly, basic literacy.

The trend away from a manufacturing-based economy and toward a services-based economy has had many benefits for those with the appropriate education and skills to meet the demands of the marketplace. Over the past

decades, the disparity of incomes between the more and less educated has increased, and individuals whose work involves fewer conceptual activities have not enjoyed increases in real income. These disparities are greater than in other developed countries. In 1970, those with a bachelor's degree or higher earned 68% more than those with a high school degree or less. By 1995 they earned 91% more (US Department of Education 1997)

**table 40: economic and education indicators**

| | United States | nine-country median |
|---|---|---|
| Population (1999)[1] | 272.9 m | - |
| GDP per capita ($US) (1999)[2] | $34 091 | $24 715 |
| GDP annual growth rate (1990–99)[1] | 3.4% | 2.7% |
| Unemployment rate (1994–97)[3] | 4.9% | 4.9% |
| Youth unemployment rate 15–19 years (1998)[4] | 15.2% | 15.2% |
| Average annual labour force growth rate (1990–99)[1] | 1.2% | 1.2% |
| Public expenditure on education as a % of GNP (1997)[1] | 5.4% | 4.8% |
| Net enrolment ratio – secondary education (1997)[3] | 96.0% | 92.0% |
| School expectancy (1998)*[4] | 16.8 yrs | 16.6 yrs |

* All levels of education combined and education for children under the age of five is excluded.
Sources: (1) World Development Report 2000/2001; (2) IMF World Economic Outlook Sept. 2000; (3) World Development Indicators 2000; (4) OECD Database

**table 41: employment by major occupational group, 1996 and projected 2006**

| | 1996 ('000s of jobs) | 2006 ('000s of jobs) | Change (%) |
|---|---|---|---|
| All occupations | 132 353 | 150 927 | 14.0 |
| Executive, administrative, and managerial | 13 542 | 15 866 | 17.2 |
| Professional specialty | 18 173 | 22 998 | 26.6 |
| Technicians and related support | 4 618 | 5 558 | 20.4 |
| Marketing and sales | 14 633 | 16 897 | 15.5 |
| Administrative support, including clerical | 24 019 | 25 825 | 7.5 |
| Service | 21 294 | 25 147 | 18.1 |
| Agriculture, forestry, fishing, & related occupations | 3 785 | 3 823 | 1.0 |
| Precision production, craft, and repair | 14 446 | 15 448 | 6.9 |
| Operators, fabricators, and laborers | 17 843 | 19 365 | 8.5 |

source: G Silvestri, *Occupational employment projections to 2006, Monthly labor review*, Bureau of Labor Statistics, Office of Employment Projections, Nov. 1997

**table 42: employment in the 10 fastest growing occupations, 1996 and projected 2006**

| Occupations | Employment | | Change | | Quartile rank by median full-time earnings | Education & training category |
|---|---|---|---|---|---|---|
| | *1996 ('000s)* | *2006 ('000s)* | *No. of jobs ('000s)* | *Per cent* | | |
| All occupations | 132 353 | 150 927 | 18 574 | 14 | - | - |
| ***Ten fastest growing occupations: 1996–2006*** | | | | | | |
| Database administrators, computer support specialists, & other computer scientists | 212 | 461 | 249 | 117 | 1 | Bachelor's degree |
| Computer engineers | 216 | 451 | 235 | 109 | 1 | Bachelor's degree |
| Systems analysts | 506 | 1 025 | 520 | 103 | 1 | Bachelor's degree |
| Personal and home care aides | 202 | 374 | 171 | 85 | 4 | Short-term on-the-job training |
| Physical & corrective therapy | 84 | 151 | 66 | 79 | 4 | Moderate-term on-the-job training |
| Home health aides | 495 | 873 | 378 | 76 | 4 | Short-term on-the-job training |
| Medical assistants | 225 | 391 | 166 | 74 | 3 | Moderate-term on-the-job training |
| Desktop publishing specialists | 30 | 53 | 22 | 74 | 2 | Long-term on-the-job training |
| Physical therapists | 115 | 196 | 81 | 71 | 1 | Bachelor's degree |
| Occupational therapy assistants and aides | 16 | 26 | 11 | 69 | 3 | Moderate-term on-the-job training |
| **Total** | **2 101** | **4 001** | **1 899** | **90** | - | |
| Share of all jobs (5) | 1.6 | 2.7 | 10.2 | - | - | |

source: G Silvestri, *Occupational employment projections to 2006, Monthly labor review*, Bureau of Labor Statistics, Office of Employment Projections, Nov. 1997

Other research has documented positive labour market returns for increasing educational attainment. Both rates of employment and labour force participation rise with educational attainment. In 1996, 39% of adults who had not completed high school were employed, while bachelors or advanced degree holders were employed at a rate of 80%. Similarly, 56% of those who did not have a high school education were not in the labour force, compared with only 19% of those with at least a bachelor's degree (US Department of Commerce 1996). Further, in 1996, median weekly earnings for full-time workers increased as the education and training requirements of an occupation increased.

**table 43: employment and median weekly earnings by education and training category, 1996**

| | No. of jobs ('000s) | Percentage distribution | Median weekly earnings of full-time workers |
|---|---|---|---|
| All occupations | 132 353 | 100.0 | $483 |
| First professional degree | 1 707 | 1.3 | 1 057 |
| Doctoral degree | 1 016 | 0.8 | 847 |
| Master's degree | 1 371 | 1.0 | 682 |
| Work experience plus bachelor's or higher degree | 8 971 | 6.8 | 786 |
| Bachelor's degree | 15 821 | 12.0 | 686 |
| Associate's degree | 4 122 | 3.1 | 639 |
| Post-secondary vocational training | 8 091 | 6.1 | 444 |
| Work experience in a related occupation | 9 966 | 7.5 | 534 |
| Long-term on-the-job training | 12 373 | 9.3 | 490 |
| Moderate-term on-the-job training | 16 792 | 12.7 | 434 |
| Short-term on-the-job training | 52 125 | 39.4 | 337 |

note: details may not add to totals due to rounding
source: G Silvestri, *Occupational employment projections to 2006*, *Monthly labor review*, Bureau of Labor Statistics, Office of Employment Projections, Nov. 1997

The benefits of higher educational attainment are consistent with recent vocational education reforms emphasising greater academic preparation and further education and training. In addition to more schooling, research on vocational education has documented other factors to be associated with better employment and earnings outcomes:

- finding a job in an occupation that matches one's vocational field of study (versus working in an unrelated field)
- concentrating coursework in a vocational field of study in high school

- completing a post-secondary vocational program and obtaining a degree or certificate
- training in the business and health fields at the high school level (for women) and in the health and technical fields at the post-secondary level (for men and women)
- pursuing vocational studies at an accredited post-secondary institution (as against a career college)

These trends in the labour market, and in education and employment outcomes are the backdrop against which to view the evolving status of vocational education in the United States.

## the education system

Within a quintessential free market economy, school education stands out in the United States as the outstanding exception of a public system. The public 'system', which is essentially municipally based, is in marked contrast to health, transport and other public utilities that are dominated by private effort. King's (1976) argument that this has evolved because of the nation building needs of the union of states supports Green's (1990) comparative analysis.

The public school system, however, stands in contrast to a mostly private system of higher education and a relatively weak VET system. Apprenticeships are almost non-existent as well (Gospel 1995), and the few that do exist are mainly adult apprenticeships.

**table 44: expenditure per student ($US) on public and private institutions by level of education, 1997**

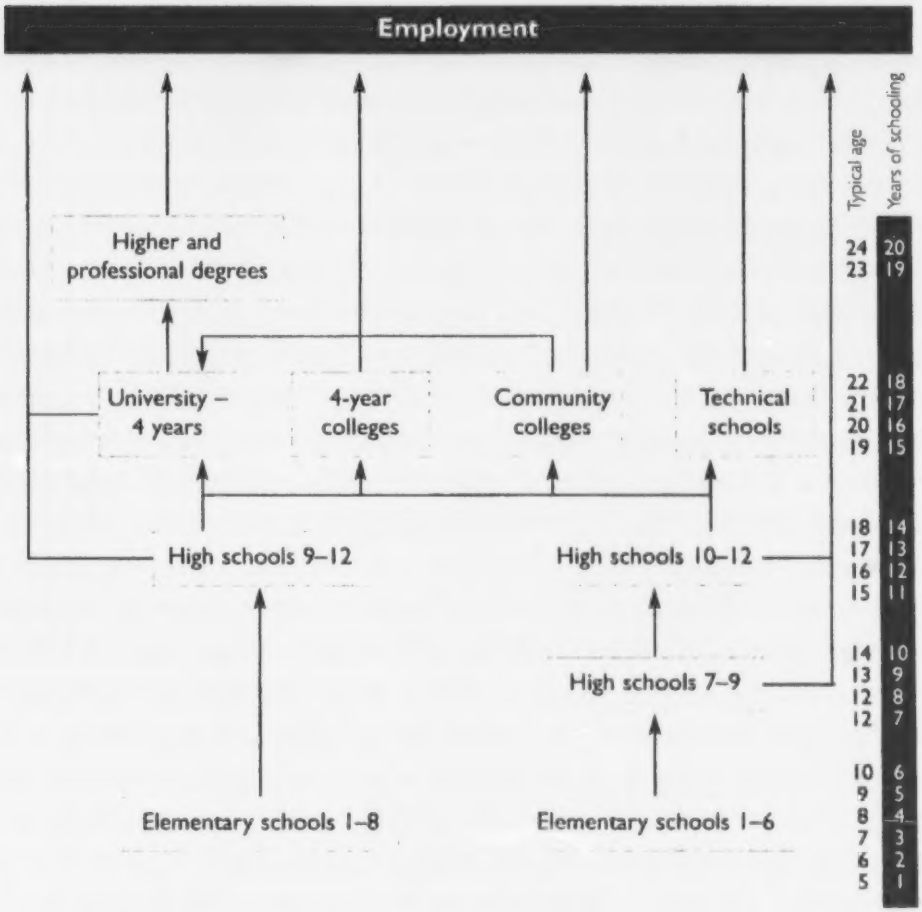
| | United States | nine-country median* | OECD-country median |
|---|---|---|---|
| Early childhood | $6 158 | $3 603 (7) | $3 463 |
| Primary | 5 718 | 3 470 (7) | 3 851 |
| Lower secondary | na | 3 983 (5) | 4 791 |
| Upper secondary | na | 5 492 (5) | 5 790 |
| All secondary | 7 230 | 4 927 (7) | 5 274 |
| Post-secondary non-tertiary | na | 8 001 (2) | 5 337 |
| All tertiary | 17 466 | 9 390 (7) | 8 612 |

* Data for all countries is not available. Figures in brackets indicate how many countries for which data was available.

source: OECD Education Database, table B4.1

The United States has very high levels of participation in education, including the highest level of university participation amongst OECD countries. Expenditure per student on higher education is almost double the nine-country median. The common high school diploma marks the end of schooling, but university entrance is facilitated by the use of a separate Scholastic Aptitude Test (SAT). VET in the United States has mainly been confined to marginal technical schools, but more recently there has been a growth in the two-year programs at the community colleges. The technical schools, institutes and colleges are mostly private and proprietoral and provide trade-level courses.

**figure 43: the United States education system**



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*who is a vocational education student?*

In the United States, most students do not attend schools dedicated to instruction in vocational education, hence the vocational population is not easily described. There is, in fact, no simple way to determine who is and who is not a vocational student. But an appropriate definition is essential to analysing this population.

*vocational and technical education at the secondary level*

Vocational education is offered in three main public high school settings. Comprehensive high schools are the traditional American secondary institutions. These schools offer the full range of academic and vocational classes. Some states have 'area vocational schools' which offer occupational programs that students attend for part of the day, returning to a comprehensive school for core academic instruction. A few states have full-time vocational high schools that provide students with all of their academic preparation as well as offer a variety of occupational programs. Within these settings, students taking vocational classes have three basic kinds of courses to choose from: specific labour market preparation (such as agriculture, business, health care); family and consumer sciences education (formerly 'homemaking'); and general labour market preparation (including basic skills development in word processing, industrial arts and the like).

Except for full-time vocational high schools, where students are required to complete a vocational course of study, most high school students take as much and as varied vocational coursework as they wish. In fact, most public high school graduates take more than one Carnegie unit[38] of vocational education and more than half take the equivalent of three or more year-long courses. In 1994, 97% of public high school students took at least one vocational education course, and 91% took at least one specific occupational course.

Given the ubiquity of vocational coursetaking across the public high school population, however, for analytical purposes it is useful to identify those students who complete a sequence of related occupational courses. Since there is no formal definition of a vocational student in American public secondary schools, any particular criteria defining a 'vocational student' and a vocational completer are somewhat arbitrary. Even so, two definitions are commonly used to describe the population with vocational training:

- *vocational concentrators* – public high school graduates who completed 3.0 or more Carnegie units in a single occupational program area
- *vocational specialists* – public high school graduates who completed 4.0 or more Carnegie units in one occupational area, with 2.0 or more of the units taken above the introductory level

In this report, the secondary level analysis will focus on those students who are vocational 'completers'—those who have accomplished at least a 'concentrator's' level of coursework by the time they receive their high school diploma.

*vocational and technical education at the post-secondary level*

Historically, federal legislation describes vocational education as leading to less than a bachelor's degree at the post-secondary level. In this sense, vocational and technical education at the post-secondary level is usually defined to include associate's degrees and sub-baccalauréate certificate programs. Both 4-year and less than 4-year post-secondary institutions offer sub-baccalauréate vocational programs. Public 4-year institutions and public 2-year institutions (often called community colleges) offer sub-baccalauréate vocational programs. Four-year institutions award bachelor's or graduate degrees, while 2-year institutions award associate's degrees or certificates as their highest award.

Post-secondary students participate in vocational education to varying degrees and with different purposes. Some students have a specific course of study as an objective (e.g. nursing). Others may enroll for credit but without the intention of completing a degree or certificate program. Also, increasingly, students have short-term goals such as obtaining additional training or upgrading their job skills and have no degree objective at all.

The relationship between vocational program organisation in US secondary and post-secondary education, combined with the different purposes and intent of students is, analytically, a complicating factor. An on-going debate over 'who is a vocational student' makes the nature of the system difficult to compare with other countries where there is clarity as to the institution and consistency in terms of what constitutes participation. Definitions of vocational education in the United States are more closely linked to the behavior of students than they are to any formal, institutional characteristics.

*vocational and technical education and school reform*

Public secondary schools have implemented a variety of reforms in the 1990s intended to respond to the challenge of preparing students for the increasingly competitive skills marketplace. Commonly adopted strategies include:

- *integration of academic and vocational curriculum* – academic and occupation or career subject matter—typically offered in separate courses—are taught in a manner that emphasises relationships among the disciplines.
- *tech prep programs* – these offer at least four years of sequential coursework at the secondary and post-secondary levels to prepare students for technical careers. Tech Prep is designed to build student competency in academic subjects and to provide broad technical preparation in a career area. Coursework integrates academic and vocational subject matter and may provide opportunities for dual enrolment in academic and vocational courses at secondary and post-secondary institutions.
- *block scheduling* – the traditional school day is divided into six or seven classes, each lasting 45 to 55 minutes. Blocked courses may be scheduled for two or more continuous class periods to allow students greater time for laboratory or project-centred work, field trips, or work-based learning.
- *career majors* – a coherent sequence of courses or fields of study that prepares students for a first job and that integrates academic and occupational learning; prepares students for employment in a broad occupational cluster or industry sector; includes at least two years of secondary education and at least one or two years of post-secondary education; and may lead to further education and training, such as entry into an apprenticeship program, or admission to a 2- or 4-year post-secondary institution.
- *skill standards* – specifications of the knowledge and competencies required to perform successfully in the workplace. Standards are developed along a continuum ranging from general work readiness skills and core skills or knowledge for an industry, to skills common to an occupational cluster and specific occupation. Standards may cover basic and advanced academic competencies, employability competencies, and technical competencies. The development of standards is tied to efforts to certify students' and workers' skills.
- *skill certificates* – portable, industry-recognised credentials that certify that the holder has demonstrated competency on a core set of content and performance standards related to an occupational cluster area.

In recent surveys, 45% of public secondary schools reported at least some integrated curriculum. Nearly 50% offered Tech Prep. Thirty-nine per cent offered some form of block scheduling allowing for longer class periods. About 20% offered career majors, while 28% reported having skill standards, 20% offered skill certificates and 20% offered occupational certificates (US Department of Labor 1996–97).

Accompanying these changes in instructional practice, there has been substantial interest in promoting work experiences during school. Beyond student employment outside of school hours, many schools offer work-based learning experiences such as co-operative education, job shadowing, internships and mentoring (48% offer co-operative education, 43% job shadowing, 25% internships and 25% mentoring) (US Department of Labor 1996–97). These efforts to give students a broader perspective on how schooling is linked to the workplace are increasingly found in high school curriculum, promoted through national legislation such as the School to Work Opportunities Act of 1994 (Public Law 1994).

These developments reflect efforts among educators to enhance the vocational curriculum and align it with the increasingly stringent academic requirements for secondary school students which are being introduced by states throughout the country.

*funding vocational education in the US*

The United States Government, through the Perkins Act (mentioned earlier, p.5) provides funding to state education agencies in support of vocational and technical education. Roughly US$1 billion is allocated to states and territories, averaging $19 million per state. Funds are distributed by formula. State education agencies then make allocations to local education agencies according to a basic grant formula specified in the Perkins legislation. The funds cover secondary, post-secondary, and adult vocational and technical education and enable a broad array of programs, with a portion reserved for particular groups such as the disabled and adults in training. The federal government estimates that Perkins provides approximately 10% of total state expenditure on vocational and technical education in the United States.

*participation in vocational and technical education at the secondary school level*[29]

As the workplace changes, and as American education reforms place increasing emphasis on building academic skills, there has been a significant change in

levels of student participation in vocational and technical education coursework. From 1982 to 1994, there was a general decline in the participation of students in vocational and technical education. The percentage of public high school graduates taking at least one vocational course decreased slightly, but there was a substantial decline in the percentage of graduates completing a sequence of related occupational courses. These decreases may be partly due to changes in secondary school academic coursework graduation requirements. As students have been required to take more academic coursework, they have taken fewer vocational courses. A series of surveys by the US Departments of Education and Labor enable summaries of vocational and technical education student participation trends over the past two decades. The general trends are as follows:

- The total amount of coursework completed by public high school graduates has increased from 21.6 credits in 1982 to 24.2 credits in 1994, an increase of 12%. This is mainly accounted for by a 23% increase in completed academic credits. In 1994, credits earned in vocational education coursework fell to 16% of total high school credits, from 22% in 1982.
- The percentage of graduates taking three or more courses in a single, vocational occupational program area (vocational concentrators) declined from 34% in 1982 to 25% in 1994.
- The percentage of graduates taking four or more courses in a single occupational program area (vocational specialists) declined from 13% in 1982 to 7% in 1994.
- In accord with the increasing emphasis on academic course taking between 1982 and 1994, students participating in vocational education increased their course taking in all core academic subjects (English, mathematics, science, and social studies). Vocational concentrators also increased the rigor of their academic coursework in mathematics, science, and social studies—taking more demanding and advanced curriculum than in the 1980s.

**table 45: percentage of public high school graduates accumulating 3 and 4 or more credits (with 2 or more beyond the introductory level) in vocational programs**

| Vocational completers | 1982 | 1990 | 1994 |
|---|---|---|---|
| 3 or more credits | 33.7 | 27.8 | 25.4 |
| 4 or more credits | 12.6 | 7.7 | 7.0 |

source: US Department of Education 1994.

*vocational and technical education beyond high school*

Enrolment in post-secondary education is a notable priority for US high school graduates. The changing economy has made this an objective for many vocational students as well. Where most vocational and technical education secondary students used to view their secondary degree as terminal, today further training is typically an explicit goal. Indeed, like other high school graduates, vocational concentrators are increasingly likely to enrol in higher education. In 1992, within two years of graduating from public high school, about three out of four students enrolled in a post-secondary institution. In 1982, 42% of vocational concentrators enrolled in post-secondary, while 58% of 1992 graduates did so. Among 1992 public high school graduates who enrolled in post-secondary education, vocational concentrators were more likely to attend a 2-year community college (as against a 4-year post-secondary institution) than were college preparatory students (49% versus 17%).

These trends have reinforced the role of 2-year community colleges in relation to vocational and technical education. Community colleges maintain a strong focus on vocational and technical coursework. Without regard to high school course of study, among sub-baccalauréate students who reported their major field of study, about 70% majored in a vocational program area in 1990 and 1996. Interestingly, older students were more likely to report a vocational major than younger students in 1996. Among sub-baccalauréate students, while 61% of students aged 20 years or younger reported a vocational major, about 75% of those 30 or older did so. This suggests that older students were entering post-secondary or returning for retraining or additional training—an important trend in the evolving role of community colleges and their consumer population.

The most popular sub-baccalauréate majors were in business, health and technical fields. Among sub-baccalauréate students, there were persistent gender gaps in the fields of business and health where women predominated; and trade and industry, protective services, computers/data processing, and engineering/ science technology where men predominated. About 20% of sub-baccalauréate students reported vocational majors in business, 15% health, and 16% technical education (which included computers, data processing, engineering and protective services). The gender gap was particularly evident in engineering/ science technologies, where the ratio of male to female majors in 1996 was 7:1.

**table 46: percentage distribution of 1992 public high school graduates according to their status in post-secondary institutions by 1994, and of those enrolled, percentage distribution according to type of institution, by curriculum specialisation in high school**

| *Specialisation* | *Enrolment status* | | Of those enrolled, type of institution | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | *Public 4-year* | *Private not-for-profit 4-year* | *Public 4-year* | *Private not-for-profit 2-year* | *Public vocational –technical* | *Private for-profit* |
| | Never enrolled | Enrolled | | | | | | |
| Total | 25.7 | 74.3 | 41.0 | 17.5 | 35.5 | 0.4 | 1.4 | 4.3 |
| College preparatory only | 6.5 | 93.6 | 53.8 | 26.7 | 17.3 | 0 | 1.0 | 1.1 |
| Vocational concentrators total | 42.6 | 57.5 | 31.4 | 8.6 | 49.3 | 1.1 | 2.0 | 7.6 |
| Vocational concentrators only | 48.2 | 51.8 | 23.7 | 6.5 | 57.0 | 1.3 | 1.9 | 9.6 |
| Both vocational concentrators and college preparatory | 10.1 | 89.9 | 57.1 | 15.5 | 23.7 | 0.3 | 2.2 | 1.1 |
| Other/general | 29.7 | 70.3 | 33.5 | 13.0 | 46.1 | 0.3 | 1.4 | 5.7 |

source: US Department of Education 1994

**table 47: percentage distribution of sub-baccalauréate students according to vocational major subcategory, 1989–90 and 1995–96**

| | Any vocational | Agriculture | Business & office | Marketing & distribution | Health | Home economics |
|---|---|---|---|---|---|---|
| 1989–90 | 54.3 | 0.4 | 17.1 | 1.1 | 10.6 | 2.2 |
| 1995–96 | 49.3 | 0.7 | 14.1 | 0.5 | 10.9 | 1.8 |

| Technical education | Total | Protective services | Computers & data processing | Engineering & science technologies | Trade and industries | Other |
|---|---|---|---|---|---|---|
| 1989–90 | 14.3 | 2.2 | 3.8 | 8.3 | 2.5 | 6.1 |
| 1995–96 | 11.6 | 2.8 | 2.7 | 6.1 | 3.1 | 6.6 |

source: US Department of Education, 1989–95

*labour market outcomes for vocational students at the secondary and post-secondary levels*

Considerable research in the United States focusses on labour market outcomes of vocational education. However, the likelihood of being employed four years after entering the post-secondary level did not differ between vocational and academic majors.

Among students who began their post-secondary studies in 1990 and were no longer enrolled in 1994, about 80% had a job. The likelihood of being employed did not differ substantially for vocational and academic majors. With increasing attention to the skill requirements for career employment, as discussed earlier, many observers of secondary vocational education now believe that the most significant 'outcome' of a student's secondary school career is continued training at the post-secondary level. That said, for the high school class of 1992, about 75% of public high school graduates were in the labour force two years after leaving high school. Vocational concentrators were somewhat more likely than college preparatory or general curriculum graduates to be in the labour force two years after graduation (83%, 63%, and 79% respectively).

Among 1992 vocational concentrator graduates who were in the labour force two years later, unemployment rates varied by vocational area. Graduates who concentrated in technology and communications, agriculture, and trade and industry had higher unemployment rates than those in marketing and distribution, health care, home economics and business.

As noted earlier, the evolving nature of the world of work has placed a premium on post-secondary completion. Among students who began their post-secondary studies in 1990 (the most recent cohort for which data are available), those with academic majors were more likely than those with vocational majors to have completed a credential four years later.

A relatively small proportion of students (14%) who began their post-secondary studies in 1990 had taken an occupational licensing exam by 1994. The most common fields for these examinations were teaching and medical other than nursing. Licensing remains a relatively unusual phenomenon among US vocational students at the post-secondary level.

## continuing vocational training

CVT in the United States is essentially non-formal or a private affair. Individuals in the US invest highly in further education, but state investment is minimal, and

industry investment is low and inconsistent. CVT is a combination of informal and semi-formal on-the-job training, combined with courses in education and training institutions, including community colleges.

Estimates of investment in training by US companies were between $40 and $50 billion in 1990 (Reich 1995). Some states have provided subsidies for company training.

The state has never heavily invested in labour market programs. Rather, there has been a dependence upon labour mobility (which is high in comparison to Europe), a historically strong and extremely diverse economy, and a highly deregulated labour market. As table 20 indicates, income disparities are very high in the US. While these disparities probably have significant and unwanted social effects, including crime, they have helped to keep unemployment low. Employment has also been driven by the historical role of immigration. Nevertheless, investment in forms of employment-related training, including subsidised employment and welfare to work, increased under the Clinton administration.

Government has also supported adult basic education programs, many of which result in a General Equivalency Diploma (GED), which is equivalent to a high school diploma. Community colleges also support adult education and CVT. Two thirds of students major in vocational courses. Other forms of training-related programs include job search assistance, self-employment assistance, employment bonuses, and training programs for dislocated workers.

*apprenticeships*

There are only about 300 000 apprentices in the US, with about 15% in the armed services, and only 14% of new registrations are under the age of 21 (BAT 1995). Apprenticeships vary between one and six years and, on completion, participants receive an Apprenticeship Completion Certificate. They include on- and off-the-job training, but the role of the state is limited to technical assistance through the Bureau of Apprenticeship Training.

The historical features of the US labour market—low unionisation, high labour mobility, a dependence upon immigration for skilled labour, and mass production with Taylorist management structures (Gospel 1995)—have not been conducive to apprenticeships. So it has never been seen as 'entry-level' training as it has in Australia and has mainly existed as a voluntary system in the few unionised sectors of the economy.

## directions and issues

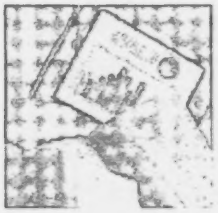
It is clear that the vocational and technical education landscape in the United States is changing as educators seek to keep pace with the academic and technical skill requirements of the job market, and it is certain that the future of vocational and technical education will be quite different from the past. The new directions for vocational and technical education appear to include the following elements.

*Attachment to school reform and high academic standards*: As American educators focus attention on rigorous academic standards, vocational and technical education must follow in step. Historically, the expectations for many students enrolled in vocational and technical education classes have been low, and changes in the nature of vocational and technical education have rested outside the larger school reform environment. This will no longer be the case. Successful programs in the future will be those which are able to complement the higher quality academic standards that most states and communities have introduced in recent years. Vocational and technical education will need to demand the same level of performance against national and state standards of excellence to which students in the general and college preparatory curriculum are held. This means that, in secondary school, all students will receive a firm grounding in English, language arts, mathematics, science, history, and the social sciences, so that they are equally well prepared for post-secondary education, the workforce, or further learning while pursuing a career.

*A pathway with many options*: While vocational and technical education, particularly at the secondary level, has been seen as terminal training, this will no longer be the case. As the labour market has changed, and as it has become clear that adults in many occupations will need to periodically upgrade their skills, the 'new vocationalism' in the United States involves laying a foundation that will expand students' employment and career potential, not limit it. Vocational and technical education will need to abandon the idea of providing the narrow pathway and organise programs of academic and technical studies around broad industry majors or career clusters that provide students with the opportunity to focus their formal learning on applications of academic skills in the work world, along with broad technical training. The same holds true at the post-secondary level, particularly community colleges. Training is not for the purpose of developing a narrow base of knowledge that forces irreversible or final career choices.

*Aligning coursework with real world experience and engaging students in applying knowledge, thinking critically and solving authentic problems*: Emerging curriculum trends seek to instruct in ways that require students to problem-solve, analyse, and become involved in higher order tasks that are characteristic of the high skills workplace. Instructors will not just purvey knowledge, they will facilitate inquiry.

These are by no means the only trends emerging in vocational and technical education, but they are expressions of directions that are shaping the 21st century enterprise. Vocational education in the United States is at a crossroads. On the one hand, vocational and technical education must align with the forces of reform that are shaping academic education in the American classroom. On the other hand, vocational and technical education must continue to impart skills responsive to the increasingly sophisticated demands of the evolving workplace.



# conclusion

This study has attempted to describe current approaches to VET in a wide variety of countries facing the pressures of global economic change. In all cases it has used the formal aspects of the education 'systems' that are defined through the role of government. In these systems, governments have variable roles in funding, regulating, managing, certifying, purchasing and providing VET. As well, governments have varying and dynamic relations with stakeholders and the various organisations that provide training services. It is the interaction of these variables that constitute the VET 'systems'.

It must be with great caution that the comparative study identifies trends. Trends are influenced by factors that are not consistent across all systems at any one time: the economic cycle, political events and ideological influences, the type and stages of economic development. The comparative study is subject to the influence of 'periodisation', whereby trends and conclusions can be strongly influenced by the period under review. Hence it reflects economies in different stages of their economic cycles. This study has attempted to be empirical, limited by the availability of recent data and literature. Furthermore, economies have underlying strengths and weaknesses, and VET policy is partially a reflection of economic policy. Nevertheless, some broad trends are discernible across our nine systems:

- The policy focus of governments upon VET is considerable. The pressures of global economic competition and the widespread issue of unemployment, especially youth unemployment, has led governments and industry/social partners to look towards VET as both an economic and social investment.
- The relationship between VET and general education is mostly one of convergence. Formal barriers to transfer between courses are being reduced, and there is a reluctance to separate students into rigid VET streams at an earlier age. This trend is consistent with the growing emphasis upon lifelong learning, and the recognition by nations and international organisations of the importance of educational foundations for the subsequent building of industrial skills.



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- Overall institutional integration has become a feature of most systems. VET and education authorities have been brought together. At the same time there has been a tendency towards greater institutional flexibility. Flexibility of systems in meeting user needs is an aim of most governments and their industry partners.
- Stakeholders are conscious of the need for broader cognitive development, described variously as soft skills, core competencies and underpinning knowledge. The integration of these skills into training programs, however, remains problematic in many countries.
- Systems are under considerable pressure to reduce and diversify costs. The potential costs of VET are almost limitless and, partially because its status as a late arrival on the block, there is stronger intent on the part of government to have users share the costs. The issue is less pressing in IVT as a number of countries have based their IVT within the secondary school system. In these cases there is a limited capacity to diversify funding to industry.
- Nevertheless, demand-side objectives remain the most pressing in TVET. Virtually all countries have a problem with limited demand and most have introduced strategies to increase demand. Strategies include the use of industry associations and leadership, regulatory and fiscal measures, curriculum changes including competency-based training, and elements of a training market. In most countries the response of the private sector has been limited. It tends to be highly sectoralised, and concentrates upon low capital-based industry areas.
- VET has been the testing ground for the concept of an education and training market. Its returns are seen as being more direct for individuals and industry, and the pressures for funding diversity have made it conducive to market-based approaches. It cannot be concluded, however, that any country has 'solved' the training market issue. Those countries that previously have been the benchmarks for the strength of their demand for VET (Germany, Singapore and Japan) have all faced limitations in the 1990s. These limitations have been at least in part related to the obsolescence of cultural characteristics that previously have been regarded as conducive to a training culture or a strongly and distributed demand for training. This obsolescence is in part related to structural factors, such as firm size, but also to the demand for new skills of innovation and adaptation. These changes may have an impact upon the educational foundations upon which industrial skilling is built in these countries. Efforts to develop a training market in countries such as the UK and Chile appear to have been at least partially successful. But the outcomes are typically skewed towards the more high skilled areas of the market.

- There is a common view that VET providers have not been 'client' or industry focussed, and various measures are being used to establish more flexible, relevant and better quality provision. It is probably the case that most systems now are of the view that a competency-based approach is only a limited means of achieving this and that other demand-oriented approaches need to be employed. The international evidence suggests that efforts to establish a more robust training market generally have led to more market-oriented behaviours on the part of public providers. In a number of countries, however, the public providers have played broader roles as community providers and there is a constant tension between the roles of 'public' and 'client' providers.
- VET in relation to school systems has historically been used as an alternative and non-academic stream. Its capacity for pedagogical diversity is belatedly being realised, and this is influencing its relationship to traditional academic education. This is also related to VET's stronger link with the workplace and employment. Most countries maintain a constant tension between the need for commonality and pressure for diversity in upper secondary education. The 'integration' of VET into the upper secondary programs is seen as a way of reducing these tensions. On the other hand such integration can lead to the dilution of the vocational, as with the British GNVQs. Countries are employing various means to maintain equivalence with diversity, including the development of qualifications frameworks and equivalence systems.

## lessons for Australia

In their comparative study of five OECD countries Kearns and Papadopoulos (2000) have concluded that countries 'face the awesome challenges of mobilising civil society in building an innovative learning culture to underpin our social and economic development and competitive position in the world'. They identify major implications for Australia that concentrate upon the linkages between VET and economic and social policy, especially at the local level. They emphasise a whole-of-government approach and its relationship with a broadly defined civil society in a dynamic economic, social and policy context.

Our study has concentrated upon VET sectors that are described in relatively 'traditional' terms: those institutional arrangements in nations that are designed to support the development of industrial and vocational knowledge and skills and

the broad cultural, structural and public policy regimes that support these arrangements. Nevertheless, VET, as is the case with other social and economic institutions, is connected to or part of both the state and the civil society. Changes in the relationship between these entities will impact upon VET. There are signs that the types of changes advocated by Kearns and Papadopoulos are being picked up by policy makers in Australia with proposals for local integration of economic and social development, including VET, at the local level (e.g. ASTF 1999; Kirby 2000; Eldridge 2000).

When drawing lessons from this study, therefore, it is appropriate to take the broad view: the role of VET in social and economic development and the policy implications of this. So returning to the key questions that we posed at the beginning of this study, some of the key implications might be:

**Sectoral delineation** of VET from other elements of education and training remains a strong feature of the Australian model. Although this is the case with other countries, including France, Mexico and China, countries such as the UK are attempting to reduce this separation. Countries such as the UK, France and Mexico are trying to develop greater integration at the local level, with potential links to other elements of civil society. Australia is constricted by its federal structure and the substantial confusion over funding arrangements. Nevertheless, locally oriented approaches to planning and delivery have the potential for better integration and planning and the development of integrated funding models, such as that being developed in the UK.

Articulation between VET and the education sectors has been a major theme in Australia for more than a decade but with a notable lack of success. New forms of linkages and integration that are being developed in other countries could be of benefit. They include the short-cycle tertiary courses, dual qualifications, and links between training awards (and apprenticeships) and degrees and higher degrees. Once again, this would require some re-examination of funding arrangements.

**VET policy** in Australia has been industry led. It is ostensibly the case, however, that the policy approach is complex and arguably the case that the policy structure is relatively closed and not conducive to making linkages with other elements of social and economic policy. Again this is complicated by the federalist structures and the associated funding arrangements but also by the industrial culture that resulted from the amalgamation of industrial training and technical education and training in the post-Kangan years.

Economic and social policy integration is a challenge for most countries. There has been a tendency in some less-developed economies (China, Mexico) to see VET as a solution to critical issues of employment and economic competitiveness in relative isolation from other policy areas. Other countries (Singapore, Chile) took surprisingly early leads in linking VET policies with broader social and economic objectives. More recently France and the UK have attempted to bring VET policy within a lifelong learning policy framework. Other countries that previously have had the luxury of locating their VET systems within highly supportive cultures (Japan, Germany) now face the challenge of more actively promoting VET within broader economic and social policy frameworks. VET policy in Australia arguably remains too isolated from other elements of social and economic policy.

After a decade or more of decline a number of European countries, including our three cases, are attempting to revive forms of **apprenticeships and alternance**. In all cases there are pressures to make the apprenticeships more flexible and to redefine forms of apprenticeship. Approaches include more varied and flexible relationships between on- and off-the-job training and education; linkages between training and higher education qualifications; and the location of initial vocational training within the school system.

Several countries are looking towards more active relationships between work and initial vocational education and training, frequently located within the school system. These approaches, especially in France, are more radical than those in Australia, which arguably are restricted by the relatively centralised industrial model. Australia could borrow from these approaches and in particular attempt to integrate elements of entry-level training into the mainstream upper secondary certificates.

The relative isolation of mainstream school education from VET is a characteristic of the Australian approach. Arguably VET in Schools is symptomatic of this problem with its various, complicated and costly mechanism designed to gain some tenuous footholds within mainstream secondary education (Malley & Keating 2000). The trend towards the integration of vocational and generalist streams in upper secondary education, noted by the OECD transition study (1999a), is consistent with developments in VET in Schools across the Australian states. But at this stage it must be regarded as piecemeal and upper secondary systems have been reluctant to develop the technological or vocational lines or programs, which are characteristic of European approaches. This may be

associated with the absence of short-cycle tertiary courses in Australia and the use of TAFE as a residual option by school leavers.[40] The trend towards the integration of technical and vocational programs with general programs can also be seen in other countries such as Mexico and Japan. The location of elements of entry-level training would be complementary to this development. It addresses issues of cost, age, status and the need to maintain an educational platform for lifelong learning.

The search for **demand-side strategies** is common to most countries, especially those with weak infrastructures (China, Mexico). It is in this area that ideological divides are the most prominent, exemplified by the UK on the one hand with its voluntarist traditions and France on the other with its high degree of state intervention. Australia clearly lacks the social partnership traditions or the industrial and political acceptance of strong state intervention.

On this basis Kearns and Papadopoulos' (2000) conclusion that future approaches need to be located within broader relationships between the state and civil society seems justified. A concentration upon industry demand through interventions such as those in France or Germany, or upon individual demand as has evolved within American work and career cultures, are unlikely to be productive in Australia. We also are faced with the facts of apparently falling industry demand for VET (Burke 2000) and possibly the movement towards a 'post-entitlement' stage in education and training where post-Year 12 studies are increasingly an individual responsibility. A search for new demand-side strategies that takes account of the broader picture is needed. These strategies also need to take account of what constitutes VET and industrial skilling and the current institutional forms of the National Training Framework may be restrictive, especially in areas such as IT.

**Institutional infrastructures** for VET in Australia remain relatively centralised, with state and national authorities and industry training bodies. A number of countries (France, UK, USA, Mexico, China, Chile) have moved towards more local arrangements, in some cases based upon new forms of local partnerships. The contrasting structural arrangements for VET, school education, adult education and higher education arguably are becoming less appropriate for the post-industrial age.

As indicated by a number of the case studies (USA, Mexico, France, UK, Japan) the differences between general education and technical and vocational programs is becoming less clear. It has been clarified in Australia through the

institutional forms of the National Training Framework. Our study would suggest that a rigid interpretation of this framework may be less helpful in the future.

There are pressures upon the European mode of **social partnerships**, especially in their more corporatist forms. Nevertheless, several countries are moving towards the incorporation of aspects of VET into broader social and economic partnerships (UK, USA, France, Germany and possibly Japan). The neo-corporatist arrangements that underpinned the national training reform agenda in the 1980s are unlikely to be revisited in Australia in the foreseeable future. The location of VET in industrial arrangements would be inappropriate in the age of lifelong learning, rapid changes in skill needs, and soft skills. Nevertheless, as is being discovered by most nations, VET will increasingly need to be related to new forms of relationships among industry, civil society and the state.

Within the VET sector, government and the parties to the ANTA agreement in Australia there may be an assumption that the National Training Framework marks the high point of achievement and that it constitutes a settlement that can be sustained for some considerable period of time. This would be consistent with other settlements in the history of technical and vocational education and training in this country (Murray Smith 1965). Although this study is empirical it has attempted to examine systems in their historical context. It is clear that there is no ideal VET system, and it would be very difficult to construct an idealised system given the complexities of social and economic contexts. What is clear is that goals that are central to VET systems, skills formation and adaptation, lifelong learning, social and sectoral distribution of skills, transition pathways and employment will require VET systems in the future to continue to adapt under the pressure of change.

# notes

[1] The High Skills Project: Education and Training Routes to a High Skills Economy, funded by the Economic and Social Science Research Council of Great Britain.

[2] The nation is not necessarily homogeneous or the nation state. There is the capacity for regional variations within nation states, a prominent example being that of Scotland (Keating 1999).

[3] Examples have been 'A nation at risk', under the Reagan administration in the USA, and the National Curriculum under the Thatcher Government in the UK.

[4] For example, between 1996–98, 100 new training regulations were established in Germany, and 30 more were being planned (CEDEFOP Dossier, 3/98).

[5] OECD estimates indicate that between 1992 and 1996 the transition period from compulsory schooling to full-time work rose by an average of almost two years in selected countries, including Australia.

[6] Figures provided by the European Commission (1998) are based upon a survey, and thus are likely to be more accurate (see table 9, appendix).

[7] This comparison is not possible for the other two regions as the levels of participation in post-elementary education are not consistent.

[8] See figure 3, appendix. Japan has achieved very high levels of labour productivity but, in comparison to the US, this has been confined to smaller sections of industry.

[9] The National Institute for Economic and Social Research has undertaken a large number of comparative studies that suggest that the processes and standards of skills formation in the UK have been poor when compared to countries such as Germany, Japan and France (e.g. Prais 1987).

[10] Amongst OECD countries Germany has the highest percentage of its population with an education qualification at baccalauréate level or above (OECD 1997).

[11] In 1993 private expenditure on tertiary education was approximately equal to public expenditure in the USA. No other OECD country matched this figure which compares with an OECD mean of approximately 20% (OECD 1997).

[12] In the case of some developing countries, the activities of donor nations and authorities have exaccerbated this tendency through the establishment of new programs, and authorities through reform initiatives (e.g. Mexico—see Minowa 1998).

[13] Guatemala provides a typical example (see Keating 1999).

[14] In the past this system was buttressed by the large and low-paid foreign labour force (guest workers). The advent of high levels of unemployment (see table 7, appendix) has reduced this practice and is one of the factors that is putting pressure upon the highly regulated German labour market.

[15] These are being replaced with regional learning and skills councils.

[16] OECD officials have questioned the impact of the new economy. They argue that there is little empirical evidence of the impact of the new economy on labour markets or, in most cases, skills demand (OECD consultations June 2000).

[17] Grogger (1998), for example, shows evidence that low youth wages in the USA are a major factor in the incidence of male youth crime.

[18] Chile is not part of the NAFTA agreement. Regional economic integration in the Americas, however, is demonstrated by the efforts made by the USA to shore up the Brazilean economy in recent years, for fear of the regional impact of its collapse.

[19] A significant weakness of comparative VET studies is their reliance upon the nation state as the comparative unit. It is obvious that regions within, and between, nation states are beginning to show as much variation in economic behaviours as do neighbouring states. The comparative study will need to account for these variations in the future.

[20] A group award typically includes a common core of general subjects, usually language, science, mathematics, and humanities/civics.

[21] The median period is 7.5 years in Germany, compared with 8.2 in Japan and 3 in the USA (Streec 1996, p.144).

[22] It is clear that mass apprenticeship systems contribute to a lower level of youth unemployment. Those OECD countries that have mass systems (Germany, Austria, Denmark, Switzerland) all have a lower ratio of youth to adult unemployment than the OECD average (OECD 1999a). Whether apprenticeship systems simply redistribute unemployment is not clear, although there is some evidence that the early and structured placement of young people in the workplace can lead to employment creation, or precipitate a recruitment decision on the part of employers (Rosenbaum & Kariya 1991).

[23] For example, the British Youth Training Scheme that was modelled on the Dual System was a relative failure, not least because of its completion rates of less than 40%.

[24] There is considerable variation in wages across industries. They tend to be higher in some of the building trades and lower in areas such as hairdressing and tailoring (Putz 1994).

[25] For example, in 1997 CEDEFOP Dossier (3/97) reported that the 'German apprenticeship market appears to be falling apart' with 150 000 applicants for 58 000 places.

[26] CEDEFOP Dossier reports that in 1995 60% of places in East Germany were state sponsored and 25% are out of company (0/95).

[27] For example, the BIBB introduced about 100 new regulations from 1996 to 98 including 26 new training occupations.

[28] Targets for 2000 are: 19-year-olds—85% with a level 2 qualification; 21-year-olds—60% with a level 3 qualification; adults—50% with a level 3 qualification; 28% with a level 4 qualification; organisations—45% of medium to large organisations recognised as Investors in People (see below) (DfEE 2000).

[29] The original 'core skills' were similar to the key competencies. They have been replaced with 'key skills' which are fewer in number and more oriented towards technology, communication and lifelong learning.

[30] It is of interest that similar schemes to Work for the Dole have been implemented in a number of European countries. Officials in these countries, however, are incredulous that such prejudicial terminology should be used in Australia.

[31] One outcome has been that several FE colleges have effectively become bankrupt, and have been 'taken over' by others.

[32] Britain's labour productivity is relatively low (see figure 8), and wage distribution is relatively uneven (see table 8, appendix).

[33] For example, the average schooling of parents of students from each type of school is as follows: Private—14.2, Subsidised—11.3, Municipal—9.6 (Cox Edwards & Da 1994).

[34] A large number of Latin American countries maintain the payroll level model. In Guatemala, for example, the levy is used to fund the government training provider, INTERCAP. The World Bank is encouraging these countries to move away from the Latin American model (Keating 1999).

[35] See Keating (1999). Other countries such as Brazil and Argentina have partially moved away from the model.

[36] Since then, Mexico has achieved a very impressive reduction in its population growth, largely through education measures.

[37] The imported aspects of the reforms are demonstrated by a recent initiative of the CONALEP. A division to develop didactic (curriculum) materials in 29 industry areas has been followed by an invitation to University of Technology, Sydney to submit an expression of interest (personal correspondence, Anna Sant'Anna, World Bank, Mexico City, 25 February 2000).

[38] A Carnegie unit is the amount of credit awarded a student for completing a course that meets for one period per day for one year, or the equivalent.

[39] There are five basic sources of data collected at the national level that, taken together, help to describe vocational education participation: *High school and beyond* (a study of 1982 high school graduates); the High School Transcript Studies of 1990 and 1994; the *National educational longitudinal study of 1988* (describing 1992 high school graduates); the *National longitudinal study of youth of 1997* (describing schools with a 12th grade); and the *Schools and staffing surveys of 1991 and 1994* (describing teacher characteristics). These data sets are collected by the National Center for Education Statistics, US Department of Education, except for the National Longitudinal Study of Youth, which is collected by the Bureau of Labor Statistics, US Department of Labor.

[40] More than 50% of TAFE entrants directly from school, who have completed Year 12, have chosen university courses as their first option.

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# appendix

**table a1: availability and qualifications of human resources, country rankings (out of 47 countries)**

| Country | Ranking | Country | Ranking |
|---|---|---|---|
| Singapore | 3 | UK | 24 |
| USA | 6 | China | 27 |
| Japan | 13 | Chile | 32 |
| Germany | 20 | Mexico | 37 |
| France | 23 | Australia | 11 |

source: *World competitiveness yearbook* 1999

**table a2: availability of skilled labour, country ranking (out of 47 countries)**

| Country | Ranking | Country | Ranking |
|---|---|---|---|
| Australia | 1 | USA | 23 |
| Germany | 3 | Chile | 24 |
| France | 8 | UK | 34 |
| Singapore | 11 | Mexico | 36 |
| Japan | 16 | China | 44 |

source: *World competitiveness yearbook* 1999

**table a3: ratio of youth unemployment to overall unemployment, 1993 and 1998**

| Countries (apprenticeship based) | 1993 | 1998 |
|---|---|---|
| Austria | 1.3 | 1.1 |
| Denmark | 1.8 | 1.2 |
| Germany | 1.1 | 1.1 |
| **Other countries** | | |
| Australia | 1.6 | 1.6 |
| UK | 1.6 | 1.7 |
| USA | 1.6 | 1.8 |
| France | 2.3 | 2.6 |
| Japan | 1.8 | 1.7 |

source: OECD 1999

**table a4: unemployment and youth unemployment (unemployment of population as a percentage of total unemployment)**

| Country | Unemployment | Youth Employment | Youth Unemployment |
|---|---|---|---|
| Chile | 6.3 | 35.9 | 13.0 |
| China | 3.1 | 59.6 | - |
| France | 11.8 | 19.5 | 28.1 |
| Germany | 9.6 | 12.5 | 10.0 |
| Japan | 4.2 | 22.4 | 6.6 |
| Mexico | 3.4 | 37.7 | 6.6 |
| Singapore | 3.2 | 27.2 | 5.1 |
| UK | 6.6 | 32.5 | 13.5 |
| USA | 4.5 | 38.8 | 11.3 |
| Australia | 7.8 | 36.0 | 15.9 |

source: *World competitiveness yearbook 2000*

**table a5: employment by sector**

| Country | Agriculture | Industry | Services |
|---|---|---|---|
| Chile | 14.1 | 26.8 | 59.1 |
| China | 49.9 | 23.7 | 26.4 |
| France | 4.3 | 25.1 | 70.6 |
| Germany | 2.9 | 35.1 | 62.0 |
| Japan | 5.7 | 31.7 | 62.6 |
| Mexico | 19.3 | 25.4 | 55.3 |
| Singapore | 0.3 | 29.5 | 70.3 |
| UK | 1.7 | 26.9 | 71.4 |
| USA | 3.0 | 23.8 | 65.0 |
| Australia | 4.9 | 22.1 | 73.0 |

source: *World competitiveness yearbook* 2000

**table a6: annual employment growth, 1993–98**

| Country | Rate | Country | Rate |
|---|---|---|---|
| Chile | 1.51 | Mexico | -1.51 |
| China | 3.04 | Singapore | 3.27 |
| France | .61 | UK | 1.60 |
| Germany | -0.15 | USA | 1.92 |
| Japan | 0.31 | Australia | 2.33 |

source: *World competitiveness yearbook* 2000

**table a7: public spending on CVT, and public spending on education and total public expenditure as a proportion of GDP, selected countries**

| Country | Spending on CVT: per cent funded by government, 1994–5 | Public spending on education as a per cent of GDP, 1994 |
|---|---|---|
| USA | 7.7 | 5.1 |
| Japan | - | 3.7 |
| France | 39.0* (1996) | 5.6 |
| Germany | - | 4.5 |
| Mexico | - | 4.1 |
| UK | 9.2 | 4.7 |
| Australia | 8.1 | 4.9 |
| OECD mean | 10.6 | 5.3 |

* The French figure does not take account of 'non-compulsory' CVT. Nevertheless, the French figure is relatively high in comparison to the USA and the UK.
sources: O'Connell 1998; OECD 1997; Michelet 1998

**table a8: wage spread across four countries, 1980s and 1990s**

| | 9th decile of income over 5th decile | | 1st decile over 5th decile | |
|---|---|---|---|---|
| | *Early 1980s* | *Early 1990s* | *Early 1980s* | *Early 1990s* |
| Germany | 1.63 | 1.64 | .61 | .65 |
| UK | 1.72 | 1.99 | .68 | .59 |
| Japan | 1.63 | 1.73 | .63 | .61 |
| USA | 2.16 | 2.22 | .45 | .40 |

source: W Streeck 1997

**table a9: per cent estimated distribution of upper secondary students by the main education and training pathways after compulsory education (1996 or closest year)**

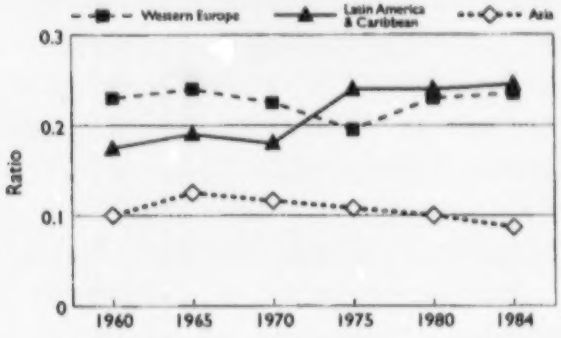
| | Pathway | | |
|---|---|---|---|
| *Thematic review countries* | *Apprenticeship type* | *School-based vocational* | *General education* |
| Australia | 3 | 2 | 94 |
| Austria | 41 | 37 | 22 |
| Canada | 1 | 5 | 94 |
| Czech Republic | *x* | 82 | 18 |
| Denmark | 44 | 14 | 42 |
| Finland | 5 | 47 | 48 |
| Hungary | *x* | 681 | 32 |
| Japan | *a* | 26 | 74 |
| Norway | 25 | 27 | 48 |
| Portugal | 4 | 32 | 64 |
| Sweden | *n* | 60 | 40 |
| Switzerland | 60 | 9 | 31 |
| United Kingdom | 24 | 33 | 43 |
| United States | *n* | 12 | 88 |
| *Other countries* | | | |
| Belgium | 3 | 65 | 32 |
| France | 11 | 43 | 46 |
| Germany | 52 | 24 | 24 |
| Greece | *n* | 32 | 68 |
| Ireland | 5 | 15 | 80 |
| Italy | *a* | 72 | 28 |
| Korea | *a* | 42 | 58 |
| Netherlands | 23 | 47 | 30 |
| New Zealand | 8 | 30 | 62 |
| Poland | *m* | 69 | 31 |
| Spain | 2 | 37 | 61 |

symbols for missing data: *a* not applicable; *m* data not available; *n* magnitude either negligible or zero; *x* included in another column (see note).

note: In Hungary, some 1 in 4 upper secondary students are found in lower vocational (trade) schools, and are often referred to in national sources (see for example Lannert (1997)) as apprentices, although the combinations of school-based and practical training that they undertake is often more similar to school-based vocational programs in which the young person has the status of a student than to apprenticeships in which the young person has the status of an employee and takes part in a contract of employment and training. The closure of many former state-owned enterprises whose facilities were formerly used for practical training resulted in some two-thirds of all workshop training occurring in school in the mid-1990s, compared to less than one-third in 1990. Growth in the number of small firms, on the other hand, has created new opportunities for practical training by self-employed craftsmen. It is not clear how many of the latter category are formally indentured as apprentices. As a result they are included in the school-based vocational category.

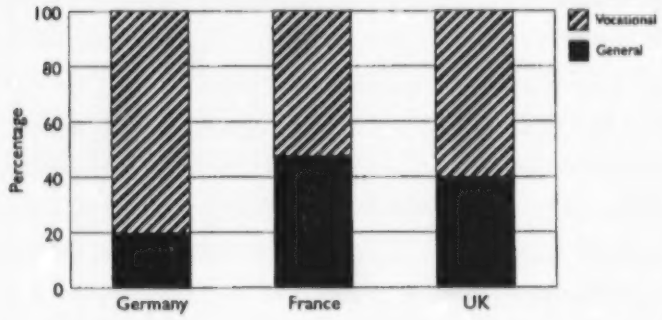
source: Sweet 2000

**figure a1: vocational education enrolment ratio by region, 1960–84**




source: Middleton et al. 1993

**figure a2: proportion of students in general and vocational education, 1993–94**




source: OECD 1997



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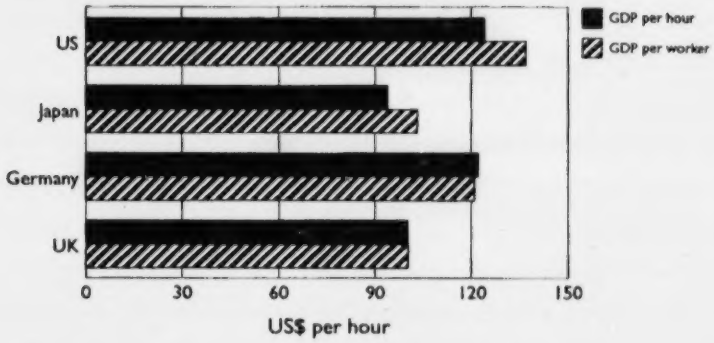
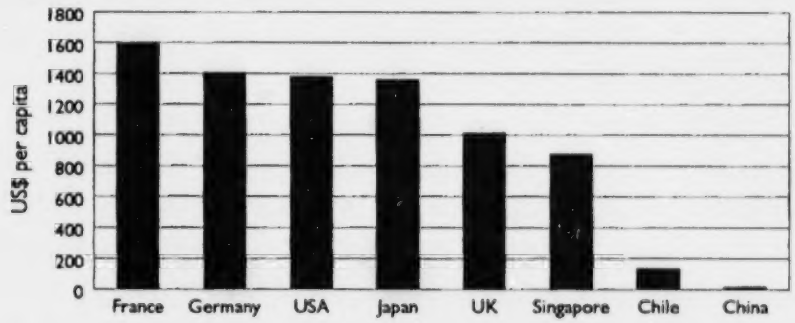
**figure a3: labour productivity, 1996**




source: the High Skills Project, London, Institute of Education 2000

**figure a4: public expenditure on education, 1995**




source: OECD 1997

This review of research on vocational education and training is one of a series of reports commissioned to guide the development of future national research and evaluation priorities.

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ISBN 1 74096 000 9 print edition
ISBN 1 74096 001 7 web edition

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